JUNE, 1947

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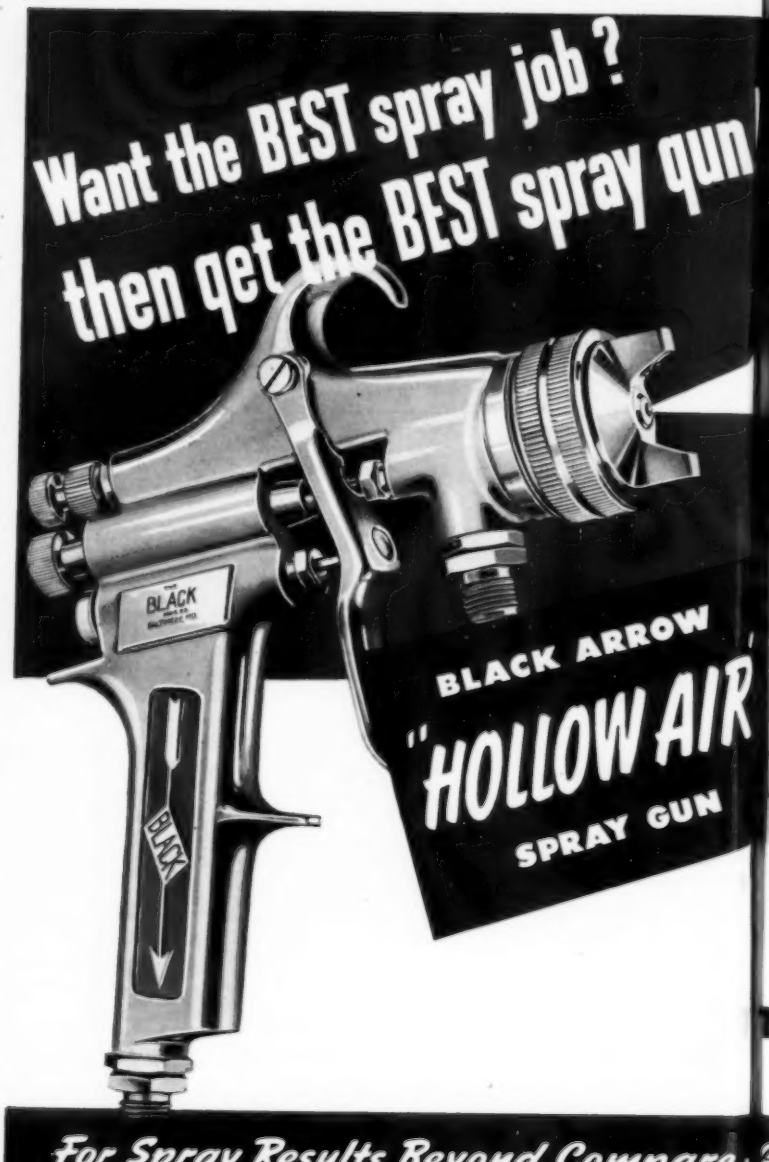
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Get the Gun with "HOLLOW AIR"

A New Car appeared recently at a showing in the Hotel Pennsylvania, New York. Yes, it is a midget, name Playboy, features are four wheel independent suspension, engine in rear, no clutch pedal or gear shifting, four wheel hydraulic brakes, and will sell for less than $1,000. Manufacturers have scheduled 100 thousand cars in 1948.

* * *

Cellular Rubber is a new product, lighter than cork, moisture proof and contains millions of microscopic cells filled with nitrogen. The 250,000 cells per cubic inch allows the rubber to conform to the shape of any object it contacts, and pressure is exerted to counteract a blow. At a recent demonstration, common hen's eggs were dropped from the roof of an eleven story building onto a 3-in. thick cellular rubber mat. Eggs traveling at a velocity of more than 50 miles per hour bounced off the mat about 30-ft. When caught they were not broken.

Use of this rubber for industrial purposes seems assured. It should make excellent insulating material. Other possible uses may be in the nose of aircraft, in helmets for miners, construction and steel workers, etc., and as a protective material for heavy packages dropped or parachuted from planes. No doubt industry will find many other individual uses for this material.

* * *

Improved Employe Relations. The present trend in industry seems to be toward clean, bright plants with cafeterias where well cooked, wholesome food is served at nominal prices, coat rooms that eliminate nails in posts or walls, clean, well equipped shower and wash rooms, and orderliness that is equal to and sometimes surpasses the average home.

Borrowing an idea from the community laundry where coin operated automatic washing machines may be used for a small fee, the Mohawk Carpet Mills have installed 30 of these machines for their 5400 employes. This is perhaps the first industrial laundry. No doubt it will reduce absenteeism among the feminine workers, and it is a big step forward to improved employe relations.

* * *

A New Glue was announced by Fritz J. Nagel and Elizabeth M. Ackerman of Westinghouse Research Laboratories at the 111th annual American Chemical Society meeting. The new glue, a resorcinol product is related to the Bakelites. It is said to be from 10% to 15% stronger than similar adhesives. Other properties include waterproof bonding, ability to hold fast at temperatures ranging from minus 60° to plus 300° F. Tests indicate a glue joint will support 100 thousand pounds. It may be used for bond-

(Continued on page 10)

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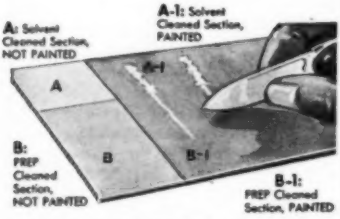

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ing any type of material except metal or glass. It is said to be particularly suited to bonding porous materials such as ceramics and gypsum products.

* * *

Space to Expand. Ruaralization of industry is mutually beneficial. There is plenty of room for expansion, air is cleaner, and opportunities for plant beautification are offered which would be impossible in heavily concentrated industrial centers. The community in which the plant is located gains through employment for the residents, better roads and streets, drainage, sewerage and public utilities. Plants located well on the outer fringe of populated areas are generally serviced twice daily by public transportation, or company owned busses shuttle employes to the bus or suburban train.

* * *

Better Rubber for tires and industrial uses has been developed, and is now being commercially produced. United Carbon Company is responsible for the reinforcing agent, a furnace carbon black which, when added to either natural or synthetic rubber, imparts higher resistance to wear and cracking.

Industrial plants using equipment with rubber accessories will, through the use of this better rubber, prevent frequent and costly shut-downs for replacements.

* * *

Spun Glass Yarn used instead of textile fabric in industrial hose has been announced by W. C. Winings, manager of the mechanical goods division of Goodyear Tire and Rubber Company. This new hose, it is said, will carry 200-lbs.,

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of saturated steam at 388° F., for more than 300-hours under continuous flexing. Where a tough job for a hot hose is needed, this should fill the bill.

* * *

Training Employes. The American Central Division, Avco Manufacturing Corp., manufacturers of kitchen equipment deserves special recognition. This company has scheduled five classes of 15 workers, each day until 2500 employes have attended. The proper relation between investor, management, employe and customer will be thoroughly described. How the advertising and sales departments function, and the vital part purchasing, maintenance and production play in this thing called industry.

J. P. Morgan once said, "There are two reasons for everything, a good one and the real one." In this case both can be considered as one very excellent reason—to produce better employes. Most workers are intelligent. If what makes business tick is explained to them, if they know the investor's, management's, and customer's problems they will have a better understanding of their own problems. Through education there comes light.

* * *

Conveyor Belt. Through the use of a new textile construction of nylon and ustex yarn, a conveyor belt has been developed which is 250% to 400% stronger than earlier belts.

In addition to increased strength, greater flexibility crosswise and low stretch lengthwise permits production of heavier and longer belts with excellent troughing qualities. These new conveyors will carry heavier loads than pres-

ent belts which makes it possible to eliminate costly transfer points and extra driving mechanisms.

* * *

Who Is Doing Research? Today we hear a great deal of research and development. We see some of the results from this study. We shall see more in the near future. According to the New York Times, a study just published in "The Index" of the New York Trust Company, in 1937, 303 research workers were employed in the chemical industry for every 10,000 wage-earners, 232 in the radio apparatus and phonographic industries, 207 in petroleum and 173 in rubber. Universities of technology are the chief source of basic scientific knowledge, but it is in industrial laboratories that applied research is carried on. The results are improved products, lower cost and a wider dissemination of technical knowledge.

Today steel, coal, sugar, paint and lacquer, transportation, as well as countless others are busy laying the foundation of new and better products, faster and more efficient methods.

* * *

The Egg or the Hen. Which comes first? It's an age-old argument. The same applies to industry. The production department claims priority, so does the sales department. All of the integral parts are equally important. Each is dependent upon the functions of the others.

Of course here lately, selling has been somewhat stagnated, but this condition is only temporary. Each day the need for salesmen is increasing. It would be extremely interesting to know how many

(Continued on page 98)

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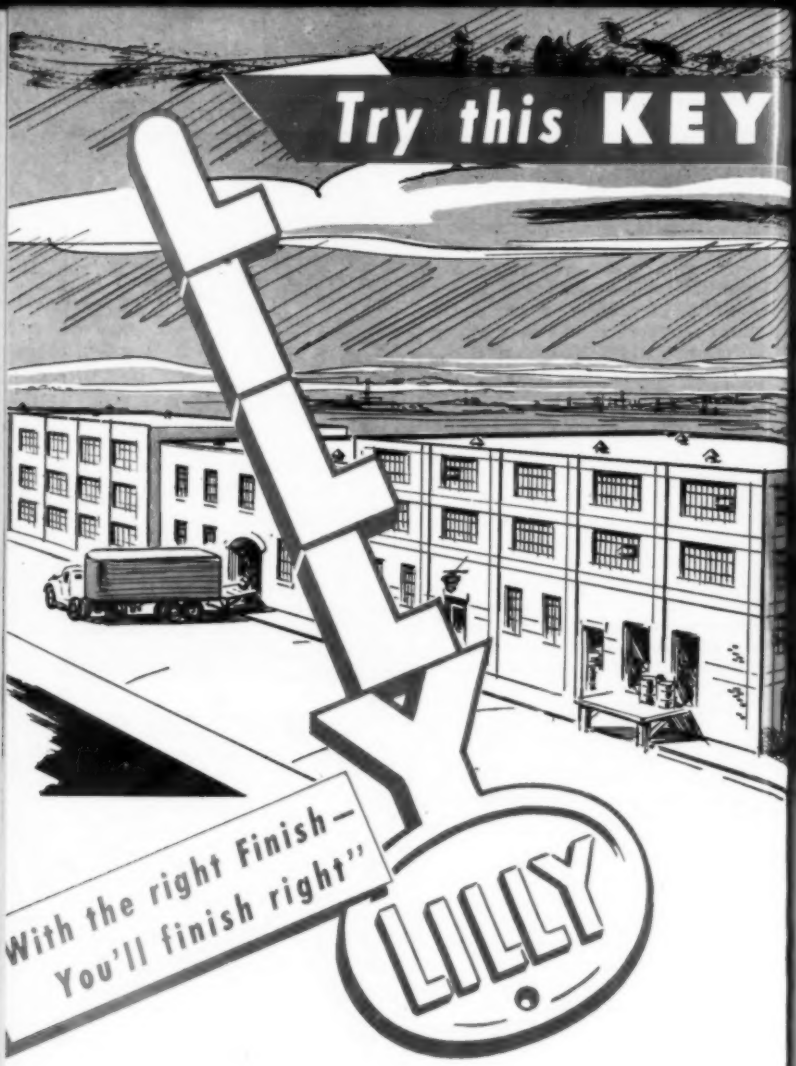

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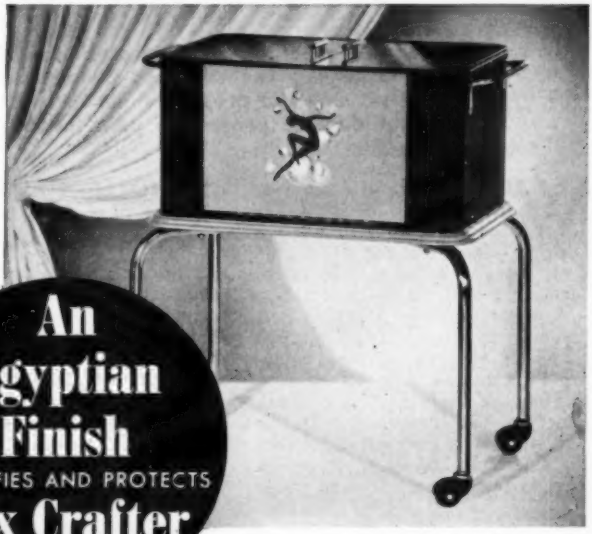

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Alodizing Aluminum

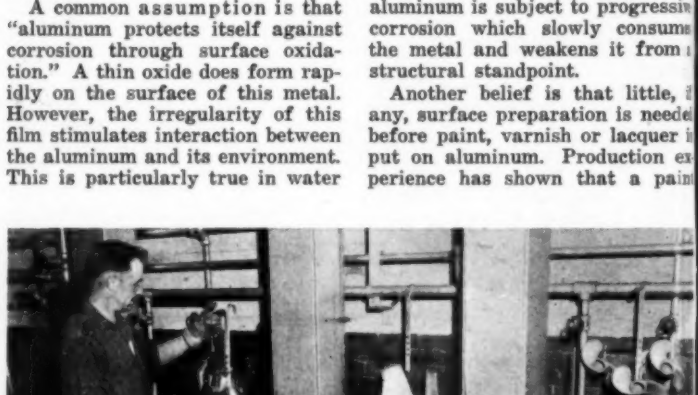
Something about cleaning, corrosion-proofing, rinsing and drying the surfaces of aluminum parts and products to prepare them for better adhesion of durable protective paint coatings.

By **NORMAN P. GENTIEU**
American Chemical Paint Co.

WITH the use of aluminum increasing in industry, it is necessary for production men who fabricate and finish this lightweight metal to familiarize themselves with its characteristics.

A common assumption is that "aluminum protects itself against corrosion through surface oxidation." A thin oxide does form rapidly on the surface of this metal. However, the irregularity of this film stimulates interaction between the aluminum and its environment. This is particularly true in water and in humid atmosphere. And despite this oxide film, untreated aluminum is subject to progressive corrosion which slowly consumes the metal and weakens it from a structural standpoint.

Another belief is that little, if any, surface preparation is needed before paint, varnish or lacquer is put on aluminum. Production experience has shown that a paint



This Alodizing setup is used for treating aluminum outboard motor die castings by an immersion process. Photograph, courtesy of Martin Motors Division of National Pressure Cooker Manufacturing Company.

coating applied over an improperly or inadequately prepared aluminum surface is doomed to premature failure in service.

Coatings formed anodically protect unpainted aluminum against corrosion and they provide a good base for anchoring a coating of paint, varnish or lacquer, but their production calls for a processing cycle which includes large tanks and electroplating equipment.

Alodizing Process, a Chemical Treatment for Aluminum

In order to protect aluminum against corrosion, and at the same time provide a surface suitable for good paint anchorage, a corrosion-proof barrier must be provided; and it is desirable that this protective skin-like coating be produced by a process that lends itself to fast volume production, uniform results, and low cost. One answer to the problem is a cleaning and conditioning process that utilizes Alodine.*

The Alodine process is a fast-working chemical surface-conditioning treatment that produces a hard, thin, tight coating which gives both painted and unpainted work greater resistance to abrasion and corrosion. It provides a smooth adhesive bond for organic finishes such as paint, wax and adhesives. Alodized work that has been painted exhibits excellent protective qualities, even in salt water or a salt laden atmosphere.

The operating cycle is of short duration, generally not over two minutes in a chemical bath at a temperature of about 120° F. No separate "sealing" operation is required, since Alodizing performs the dual function of coating and "sealing" work in one operation.

*Trade Mark Reg. U. S. Pat. Off.

So little metal is dissolved in the coating sequence that the dimensions of treated metal are practically unchanged. Inasmuch as the Alodized coating is integral with the metal, it is as flexible as the metal itself, therefore bending and denting does not damage it.

Aluminum Can Be Alodized By Dipping or Spraying

Alodizing is readily adaptable to application by tank immersion, spraying or flow-coating. Following are flow diagrams of two typical processing cycles. While both procedures produce protective coatings suitable for both painted and unpainted aluminum surfaces, Process No. 1—the "Hot-Dry" process—provides maximum protection for aluminum and its alloys, either painted or unpainted. Process No. 2—the "Rinse" process—a somewhat simpler routine, is recommended for surfaces that are to be completely painted afterward.

When the aluminum is not to be painted, the operational sequence of Alodizing comprises these steps:

1) Preclean, if necessary.*
2) Rinse.*
3) Treat with Alodine.
4) Dry (280° to 350° F.).
5) Deoxylyte-rinse (100° to 120°F.)**

If work is to be painted later, then it is Alodized in this way:

1) Preclean, if necessary.*
2) Rinse.*
3) Treat with Alodine.
4) Rinse in cold or warm water.
5) Deoxylyte-rinse (100° to 120° F.)

Either of these processing cycles may be performed by immersing the metal in solutions contained in suitable tanks, or by spraying the

*Clean, dry aluminum generally requires no precleaning, in which case steps 1 and 2 may be omitted.

**This step is recommended prior to painting only.

solutions on the parts as they are moved by conveyor through several stages of a power-spray washer.

The type of dip tanks or other processing equipment utilized is governed by each operation. These recommendations may be summarized as follows:

Precleaning: Tanks or other equipment for cleaning with phosphatic cleaner, solvents, vapor degreasing, or alkaline detergents should be made of mild steel. Cleaning corroded work with Deoxidine compounds requires the use of acid-resisting equipment, such as lead, stainless steel, Karbate or rubber. Adequate provision must be made for heating the solution when required. For clean water rinsing, a tank made of mild steel is satisfactory.

Alodine Treatment: If the immersion method is used, a stainless steel tank is recommended for holding the Alodine solution, with facilities for heating the bath to a temperature of 140° F.

Cleaning, Rinsing, Chemical Treating and Drying Metal

Equipment in the after-cleaning rinse and the Deoxylyte-rinse (the final hot rinse made up with a specially-formulated acidulated control agent) can be made of mild steel. Same goes for equipment used in precleaning if a phosphatic cleaner or alkali is used.

Where deoxidines are used to clean and condition corroded aluminum, the cleaning tank should be lead-lined and the pumps, nozzles and piping should be fabricated from stainless steel. For step No. 3, in which the Alodine chemical solution is sprayed on the work, equipment should be constructed entirely of stainless steel.

For maximum efficiency, the circulating pump for the final Deoxylyte rinse should be equipped with a stainless steel impeller. Each stage should be provided with the necessary pumps, piping and spray nozzles for completely spraying the work as it is conveyed through the mechanical washing machine.

Alodizing aluminum tiles in tank. Photo, courtesy of Vikon Tile Corp.

Drying: Where the "Hot-Dry" process is used the treated aluminum is immediately dried in an oven capable of temperatures ranging from 280° to 350° F. For the "Rinse" process, a clear-water rinse in a steel tank follows the Alodine treatment.

Deoxylyte-Rinsing: If the treated aluminum is to be painted, it is Deoxylyte-rinsed in a steel tank; maximum temperature 150° F. Then, for final drying before coating or waxing, the work is treated in a drying oven or under infra-red lamps at from 100° to 150° F. The heat for drying pieces that come direcly from the Deoxylyte-rinse is

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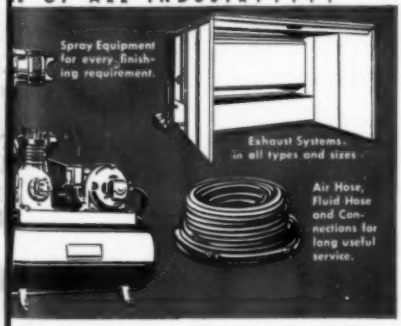
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DEVILBISS HINTS . . . on *Finer Finishing*

AIR COMPRESSORS

Proper performance of the air compressor that powers your spray guns begins with the choice of its installation site. There is a tendency to tuck the compressor away in a remote and often littered corner and to forget it until it eventually breaks down.

Check compressor location. It should be set up and levelled in a spot where it can receive cool, clean, dry air, and then it should be lagged to a cement base. A damp location will contribute to wear and tear on the unit generally and results in humid air reaching the spray gun. A clean place, of course, promotes general maintenance. Dirty air will clog the intake filters, foul the valves, lower the air output, and eventually contaminate the finish. It is advisable to place a hooded intake outside the building for proper air supply. Cool air helps to make the operation efficient.

Placing the flywheel next to the wall is a good safety precaution. It should not be so close to the wall, however, that interference with either motor air cooling or easy inspection is possible.

Compressing air raises its temperature and as the air cools, moisture in it condenses. Therefore, if your air receiver or storage tank is not drained daily it may turn into a water tank. Check it daily. Water robs it of its air storage capacity, contaminates your air supply and may eventually rust and weaken the structure of your tank. Automatic drains are available to eliminate the human factor in forgetting daily draining of oil and water from the tank.

The air compressor is a mechanism which demands oiling just as an automobile. Check lubrication. Follow the manufacturer's printed recommendations for oil and its change. A common fault is to use too much oil. The correct amount can be determined by regular examination of the oil level gauge.

The electric motor on the compressor should be lubricated regularly according to the manufacturer's specifications. Keep a spare set of valves on hand and replace them when they become warped, broken, or badly carboned.

Next in importance to placing the compressor in a suitable spot is placing it on a maintenance schedule in which it will be regularly inspected and attended. A maintenance card fastened to the compressor facilitates this program. A little preventive maintenance is worth while in dollars and cents in saving of time and equipment.

considerably lower than that employed in drying parts which emerge from the Alodizing tank.

Entrapped liquids are blown clean with dry compressed air. Work baskets or processing crates should be constructed of stainless steel. It is important to equip all tanks with skimming troughs and bottom drains for thorough cleaning at regular intervals.

Precleaning Soiled Metal Before Alodizing

When corrosion-free work of any analysis is heavily coated with drawing compounds, machining lubricants, fabricating oils or shop smudges, precleaning is necessary before Alodizing. A well-buffered alkaline-base composition capable of removing oil, without etching the metal, should be used for this purpose.

After precleaning, the aluminum should be thoroughly rinsed by both immersion and spraying to prevent excessive neutralization of the Alodine bath by alkali which is carried over into the solution by the cleaned aluminum—or sprayed with a phosphatic-type cleaning agent. A spray process is recommended because of its more violent mechanical action.

A metal alloy's composition governs the choice of phosphoric acid materials utilized for cleaning and

In this typical 3-stage Alodizing installation at Media Machine Works, Media, Penna., aluminum awning parts are chemically conditioned to improve the paint adhesion and to give the painted parts added protection for outside exposure.

How to Obtain

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FINISHES ON ALUMINUM FURNITURE FRAMES

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When you condition surfaces of aluminum frames with Oakite Compound No. 36, you assure permanent grippage of your spray finish . . . build an important sales feature into the finished product.

This mildly acidic, liquid prepaint treatment is safe, easy to apply. It microscopically etches the metal surface, then develops a thin, adherent film of aluminum phosphate on the clean metal. It retards under-coat corrosion, gives better holding qualities to paint, enamel or lacquer coats.

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MATERIALS
METHODS
SERVICE

Specialized Industrial Cleaning

conditioning corroded work. On alloys that contain no copper, an emulsion-type compound can be used at 140° F. in a spray process; or another grade of this group of cleaners may be diluted with water and used at room temperature as a brush-on, wipe-off process where rinsing facilities are not available.

Preparation of Typical Alodine Bath

To prepare each 100 gallons of Alodine solution, 10 gallons of the chemical, in liquid form, are poured into the stainless steel tank, and 18-lbs. of make-up powder of the same chemical are used. Then 90 gallons of water are let into the tank and the solution is mixed thoroughly. The Alodine bath should be kept at a temperature of from 110° to 120° F.

Which Method to Choose for Applying the Coating

The method of application—whether spray, dip, tumbling barrel or flow-coating—is generally determined by the size and shape of parts to be treated and the quantity of output required.

After proper precleaning and thorough rinsing (whenever these two pre-alodizing operations are needed) parts are immersed in the Alodine tank by means of hooks, racks or any other suitable method that will permit free circulation of the solution to all surfaces of the work. Small parts may be processed in stainless steel tumbling barrels. An effective coating is produced in from one to five minutes, after which the parts are drained over the processing tank for one half to one minute.

In the spraying process the work is hung on a conveyor and carried through the various stages of cleaning and rinsing, spray-alodizing, and drying or rinsing. If the work is to be painted after drying, the warm Deoxylyte-rinse follows drying.

Maintaining Solution in Tank At Full Efficiency

Some of the solution gets away from the processing tank through dragout, which lowers the level of the bath, and by reaction with the metal which reduces the amount of chemicals without appreciably changing the level of the bath. Although a clean new bath will produce a coating, the general procedure calls for immersing some scrap aluminum in a fresh bath for a few minutes to "age" the solution before using it.

To maintain bath at its proper strength, it is analyzed periodically and additions of chemical liquid and powder are made as indicated by the test.

As the operation of the bath progresses, an accumulation of insoluble salts separates as sludge and settles to the bottom of the tank. Periodic removal of this sludge is necessary. *(To page 44)*

An Oil Heater of Unique Design

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AND

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WITH

BLACK MAGIC

This is a sheet metal oil heater, manufactured in large quantities and finished with BLACK-MAGIC. BLACK-MAGIC was selected for the drum of this stove because its simplicity makes it possible for the manufacturer to secure an attractive finish and good corrosion and heat resistance at an economical cost. This is but one of thousands of uses for BLACK-MAGIC.

BLACK-MAGIC is an INTEGRAL finish, not a coating; actual penetration is .0001". Very flexible. Products may be formed after processing —often an advantage. Also an excellent bond for paint and lacquer. Chemical reaction at 300° F. For iron and all steels except stainless. There are also BLACK-MAGIC baths for zinc, copper, brass and cadmium. Send for samples and the interesting "Black Book" of facts.

SILCO a glass-base, sprayed-on protective and beautifying finish for steel and brass products. In all colors. Write for samples.

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MODERN METAL FINISHES

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N. Y. City: Lacquer Finishing Co., Inc., Clifton, N. J.—C. D. Hamilton, Fayetteville, N. Y.—CLEVELAND: Universal Paint & Varnish Co.—DETROIT: The Danell Co.—MILWAUKEE: A. F. C. Johnson—PHILA.: Albert Printz, Germantown—ST. LOUIS: G. S. Robins & Co.—DALLAS, Tex.: Texokana Supply Co.—LOS ANGELES: Barber-Webb Co.—OAKLAND: Geo. A. Kushman Co.

Drying Work Immediately After Alodizing

Aluminum to be left bare or only partially painted is transferred from the Alodizing solution, after draining, to a drying oven maintained at a temperature of 280° to 350° F. and kept there until it is dry—usually one to two minutes.

The coating resulting from this treatment is resistant to corrosion and abrasion. Where specifications call for painting or waxing the step—warm Deoxylyte-rinsing—is required. Work so prepared can be treated aluminum, an additional painted over the entire surface. However, the customary preparatory treatment for painting is the following:

As shown in the second flow diagram for processing parts that are to be painted, a fresh water rinse follows the Alodine treatment. Parts are either immersed for one half to one minute in, or sprayed with, cold or warm water. The surface of the rinsing solution should be kept clean at all times. This is easily accomplished by a continual flow of water over the skimming trough.

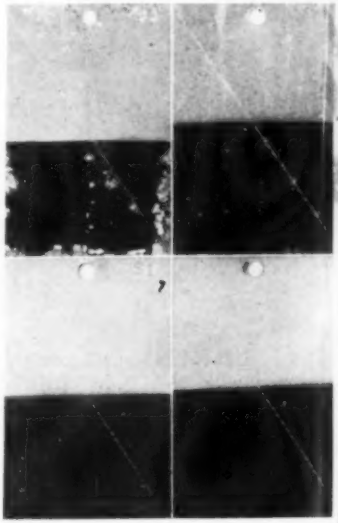
Deoxylyte-Rinsing of Treated Aluminum

A 12-second immersion of the treated aluminum in the heated Deoxylyte solution precedes the application of an organic finish. This bath is heated to a temperature of 100° to 120° F., and the pH is maintained between 3 and 5½. A new bath is made up at least once every day.

Drying and Painting the Treated Metal

Following the warm acidulated rinse just mentioned, the aluminum parts are dried in ovens or with infra-red lamps at a heat of not more than 150° F. This heat is much lower than that required for drying Alodized work not rinsed prior to drying.

Moisture is blown from crevices and pockets with clean dry compressed air; any moisture that



Each of these four aluminum panels was prepared differently for painting, then finished, exposed to salt spray, removed from this corrosive atmosphere, and photographed.

Panel in upper left was solvent-wiped (with mineral spirits), with top half then receiving zinc chromate primer and bottom half primer plus one top coat.

Panel at upper right, chemically oxidized (alkaline chromate) was similarly finished.

Panel at lower left was anodically oxidized with chromic acid; top half received zinc chromate primer and bottom half, primer plus one top coat.

Panel at lower right was prepared by Alodizing, then finished in same manner as panel at left.

These comparative corrosion tests offer visual proof of the excellent protection that this new, improved non-electrolytic, rust-proofing and paint-preparation process provides for products and parts fabricated from aluminum and its alloys.

PAINT STICKS TIGHT to a PHOSTEEL BOND

Your finishing problems for iron and steel are readily solved when you turn to the quick (30 seconds) and easy (180° Fahrenheit) bonding process that requires no special equipment and only simple testing to maintain a balanced solution.

Add to these advantages Phosteel's low cost, its uniform crystalline surface structure, its ease of adaptation to conveyorized systems, its prompt availability, and its proved performance in production. PHOSTEEL is the answer to your bonding problems.

Write or phone. We will arrange for our field engineer in your territory to call on you with the whole PHOSTEEL story.

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splatters is wiped off the work with clean cloths. With the dry treated aluminum now prepared for painting or waxing, it is handled only with clean rags or gloves to prevent finger-marking or smudging the surface. The final protective or decorative coating should be applied as quickly as possible after Alodizing.

In this article many details have been omitted or merely mentioned for space reasons. It is hoped that the data presented here will prove to be of interest and value to finishers who are now working with aluminum and its alloys.

Contrary to the belief in certain quarters, aluminum does require corrosion proofing treatment to prevent or retard its deterioration and to improve the appearance and durability of its painted surfaces. The process described here puts a durable bond between the metal and the organic coating, holding both firmly together, while at the same time investing the finish with greater protective and decorative qualities.

New Research Group At Mellon Institute

Sponsored by Carbide and Carbon Chemicals Corp., a new research group has been established at Mellon dustrial application of vapor-absorbent activated carbons to improve equipment and processes for the recovery of solvent vapors, to study methods for the purification of industrial gases and deodorization of air, and to study industrial processes for the separation of materials in the vapor phase.

Industrial Directory of Mexico

Rolland Publications announces publication of the first industrial directory ever printed in Mexico, sponsored by the Confederation of Industrial Chambers of Mexico (similar to the Amerian Manufacturers Association). Included in its 1024 pages is a list of all Mexican industrial companies, their addresses, names of executives, a list of raw materials used by each company, products manufactured and capitalization; also the number of workers. This directory will cover all industries. It will sell at $20 prepaid to any part of the United States.

So that all U. S. buyers will be able to utilize this directory, a special Spanish-English dictionary is included which covers most of the words in this publication. Address Publicaciones Rolland, S. de R. L., Plaza de la Republica No. 6-407, Mexico, D. F.

Brill Appointed Designer of Finishes

Joseph A. Hager, Vice President and Director of Sales of the Grand Rapids Varnish Corporation, announces the appointment of Ralph Brill as a designer of finishes. At the same time the company is informing the trade and public of broad plans to intensify the merchandising of its already widely accepted line of "Guardsman" finishes.

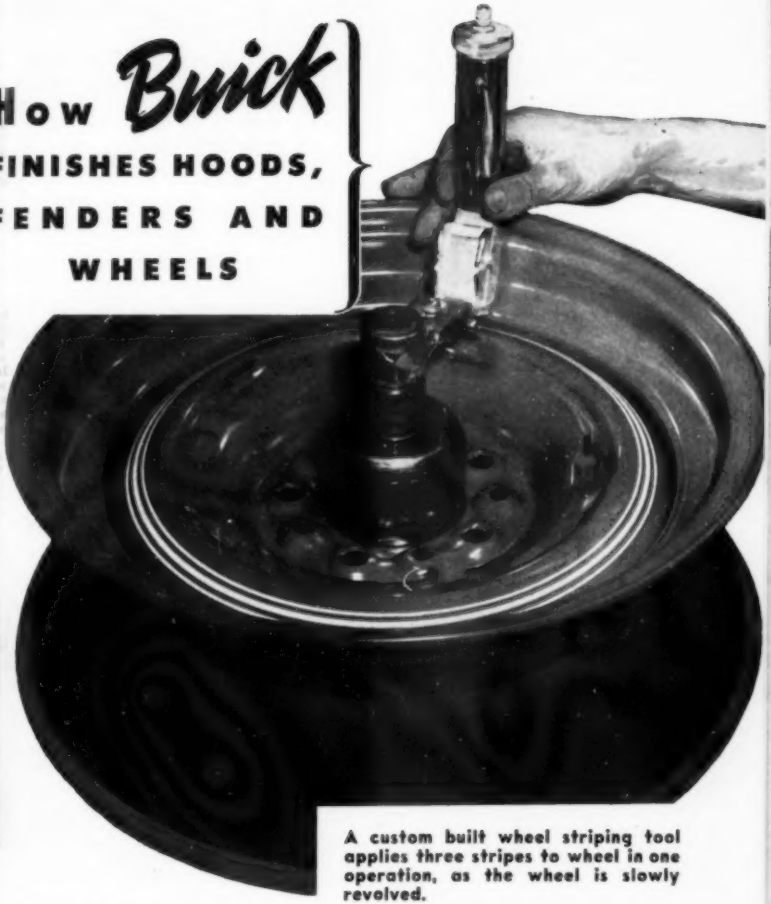
Brill, one of the country's leading creative designers of finishes for fine furniture, has devoted his entire lifetime to this profession. His accomplishments have earned him coast-to-coast recognition. His experience includes three years with Universal and Lasky Studios in Hollywood, several years as consultant in the designing

Ralph Brill, now designer of finishes for G. R. Varnish.

and furnishing of such West Coast show places as Grauman's Egyptian Theatre, various churches and cathedrals and numerous Wilshire Boulevard mansions in Los Angeles.

Vice President Hager stated the company now is so staffed as to be in a position to give new meaning and importance to the service it has been rendering manufacturers. With the constant demand for the upgrading of the finish on furniture, it is expected that many manufacturers will want to avail themselves of the assistance the company is in a position to offer. He added that Dan Buckley, long the director of the company's finishing studio, continues in his present capacity.

How Buick FINISHES HOODS, FENDERS AND WHEELS



A custom built wheel striping tool applies three stripes to wheel in one operation, as the wheel is slowly revolved.

BUICK Motor Division at Flint, Mich., is now busy turning out thousands of shiny new passenger cars. It is of considerable interest to the outsider to take a tour of inspection through this plant and see how the hoods, fenders, wheel shields, small parts and wheels are painted.

It is necessary to schedule 174 "jobs" ahead of body assembly in order to keep the parts coordinated with bodies as they arrive from the body plant. This schedule is controlled by daily car run sheets, on which appear the body number, model, color and trim. The eleven standard colors used on these parts

BY LARRY STRONG & H. F. REVES

are all numbered, so that like colors on a given run sheet may be readily sent through the paint department together.

Multiple Spray Type Washing and Bonderizing Setup

The first operation in preparing the parts for painting is to pass them through a 7-stage multiple spray-type combination washing and Bonderizing machine. The stages of this unit are as follows:

1) One minute spray cleaning, using a mild alkaline cleaner with an emulsion added at 145° to 150° F. This removes from the metal all traces of grease, oil, loose scale or other foreign matter.

2) First water rinse, 135° F.

3) Second water rinse, unheated. Each rinse lasts 30 seconds. It was found to be economical to have two sprays instead of one, as the first rinse becomes contaminated, while the second rinse does not, and thus removes all alkali.

4) Approximately one minute spray of Bonderite No. 125 at 128° to 130° F.

5) A 30-second duration water rinse, unheated.

6) A 40-second rinse using a chromic-phosphoric acid mixture at 130° F. This has the advantage of lessening the yellow stains resulting from the use of straight chromic acid as a conditioning rinse.

7) The parts pass through a final 60-ft. dry-off oven at about 275° F. Time, four minutes.

Primer Is Dipped and Baked; Surfacer Sprayed and Sanded

The parts are then transferred to the black primer dip line. Fenders and hoods move along on the line, while the small parts move on another. The parts are dipped in a large tank, then conveyed up and over to a dripping area. From here they pass through separate baking ovens. Modern gas-fired ovens heat the forced air to 580° to 600° F. The tunnels are controlled to 380° to 400° F.

The various parts receive different handling necessary to their functions. Front fenders are transferred to a surfacing conveyor, where surfacer is sprayed on. This eliminates some metal defects and fills in scratches or pits in the metal surface. The fenders then move through a dry-off oven. Front fenders are placed on sanding bucks and water sanded. They are given a water sprayed rinse and dried by heated air. Workmen bump out and sand any defects, and again spray with primer any bare spots. *(To p. 52)*

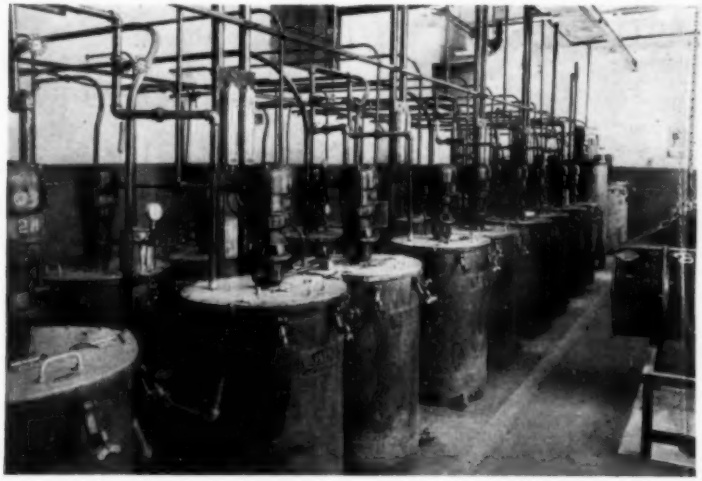
A special rack, designed to hold the 12 outer small parts, conveys the parts through spray booth for the second coat.

Quick-Change Artist . . .

When the temperature falls, it's a signal to the weasel to change his coat, and become an ermine. Clad in white, the ermine blends with his snowy background, is able to take his prey by surprise. His white coat also helps the ermine to conserve body heat in the bitter cold of winter.

Another multi-purpose surface coating is lacquer. It's as beautiful as ermine, and durable as well. It's easy to apply, and requires no costly equipment to speed up drying. Your lacquer supplier would like to tell you more about this versatile finish's many advantages.

CSC makes solvents and plasticizers, but is not a lacquer manufacturer.



Tanks in the paint mixing area are paired off; the front row is for mixing while the back row supplies paint to the circulating system through which it is piped to the spray booths.

Painting, Drying and Striping Automobile Wheels

Wheels are conveyed to the circular wheel spray booth. Here, light colored wheels are given two coats, and all other colors one coat of enamel. One side of the booth is a blow-off station where the wheels are cleaned of foreign matter. They are then conveyed around to the spray side of the booth where they arrive in sets of five. Only the outside is painted in color. The operator sprays five wheels the same color, and usually a gap is left in the line-up to permit the operator to change his spray gun if a color change is indicated. From the spray booth the wheels go to a drying line.

A dry-off oven for wheels is located over another oven for miscellaneous under parts, to conserve space. The heating units of these two ovens are separate. Wheels take 47 minutes to pass through the oven at 250° F. The small parts take 43 minutes, and are then packed in cartons and delivered by electric trucks to final assembly. These under parts require only one coat of enamel.

Wheels receive three concentric color stripes. One man transfers wheels from the drying line to the striping fixture. The striper takes a striping tool and lowers it down on the wheel. As the wheel is turned slowly the three stripes are rolled on in one turn.

Paint viscosity is an important factor in the success of striping; stripers know just the right paint thickness so that it will flow properly and still not run. Three colors are used in striping, French white, silver and black. From the

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The big problem today is how to maintain quality and cut costs.

New Period Lacquers produce a beautiful finish that is durable and withstands normal abuse. They are easy to apply and help to speed up production schedules and cut costs. Manufacturers who are interested in a quality finish at low cost are invited to try New Period Lacquers at our expense.

The complete New Period line includes sealers, gloss, semi-gloss, clear and pigmented lacquers. They are formulated for various methods of application and for any production setup.

A production sample, at our expense, will convince you of its superiority.

Our complete line of New Period finishes and our laboratory facilities are at your service. Write us!

NEW PERIOD Production Finishes

ESTABLISHED 1917

NEW YORK WOODFINISHERS' Supply Co. Inc.

109 IMLAY STREET BROOKLYN, N. Y.

striping fixture wheels are transferred by conveyor to the tire mounting department.

Twelve outer small parts and wheels are coated with synthetic enamel, while hoods, fenders and wheel shields are lacquered. Two small paint booths accommodate the steering column mast jackets, U-shaped brackets and gear shift lever control housings which are sprayed with one coat of synthetic enamel.

Hoods Are Prime Coated and Masked for 2-Tone Jobs

After the prime coat, all hoods are given a coat of grey air-drying surfacer. From the spraying booths they are set aside for a 2-hour drying period, then placed on bucks, sanded and inspected. Next they are transferred to the lacquer spray line. Mechanical polishers are used for rubbing the top and side roll on hoods.

At this booth an operator sprays the wheels in groups of five as they revolve before him. Note the terraced floor in booth over which water curtain flows for "down spraying."

Masking is necessary on 2-tone hoods, and also on rear fender gravel deflectors. The lower part of these gravel deflectors is stainless steel, therefore requires no finish. Masking is done with paper and tape.

On a 2-tone hood the lower color is sprayed on, then the hood is removed and masked. The second time through, the upper part is sprayed.

Twelve small parts such as front and rear bumper shields and extensions; running board rocker panels, and blister brackets are sprayed with one coat of synthetic enamel. They are carried through the spray booth on a special rack designed to hold one complete set at a time.

Air Conditioned Spray Room; Paint-Circulating System

Paint mixed to the proper viscosity is piped to the spray booths from a central supply room. There are eleven colors, each of which is designated by a number. As parts pass through the booth, numbered cards hung on the conveyor indicate color changes. Pressure on the paint supply system varies from 26-lbs. to 30-lbs.

It is impossible to reclaim any paint from the sludge which accumulates in the tanks because of the mixture of colors. Sludge is removed and disposed of.

The entire spray booth area is maintained under pressure. This eliminates dust and dirt.

Paint Preparation; Mixing; Moving Heavy Drums

The central supply room is divided into two sections, one for storage the other for mixing. All drums are stored in a fireproof concrete storage room, in compliance with fire regulations. Drums are handled by means of a hoist

for velvety coatings

FLOCK

BY BEHR-MANNING

The appeal of flock finishing is the appeal of velvet. Whether your flock-coating operation is a decorative or functional one—on metal or wood, glass or plastic, cloth or paper—flock-finishing imparts the richness, beauty and softness of velvet.

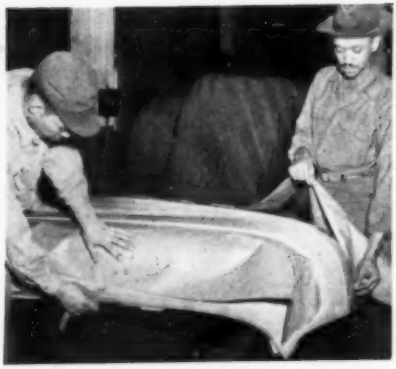
Four quality features recommend Behr-Manning Flock for velvety coatings. First, it is cut to precision length for density and uniformity of coating. Second, it is new rayon for velvet-like beauty and softness. Third, it is dyed under laboratory controls for color-richness and fidelity. Fourth, it is finish processed for freedom from "pilling" in spray guns, hoppers and coating equipment.

Let us send you our new flock-finishing booklet complete with color samples.

BEHR-MANNING · TROY, N.Y.

(DIVISION OF NORTON CO.)

75 YEARS OF QUALITY AND SERVICE



After spraying and drying the lower part of a two-toned hood, the lower part is masked with paper and tape so that the upper part may be painted.

and chain operating on an overhead monorail.

In the mixing area, electric barrel rollers agitate each drum about four hours before the paint is filtered into the mixing tank. Then thinner is added to obtain the required viscosity. After thorough mixing by means of an electric agitator the paint is pumped out of the mixing tank into the supply tank which is just behind it. In the supply tank paint is under constant agitation as it is pumped through a pipe system to the spray booths. A gauge indicates the quantity of paint in the supply tank.

Using the two tank system permits proper mixing of paint while the material in the supply tank is being pumped throughout the system. All paint lines are washed out with solvent once a month.

Honeywell Chicago Office Moves to Larger Quarters

The Chicago regional office of the Minneapolis-Honeywell Regulator Company and its Industrial division, the Brown Instrument Company, has moved to a new location which will provide three times as much space as former quarters. The new office, at 351 East Ohio Street, occupies the entire top floor of the building and provides 30,000 square feet of floor space.

The Chicago regional office supervises activity and branch offices in various cities of Wisconsin, Illinois, Michigan, Indiana, Kentucky, Tennessee, Missouri, Arkansas, Kansas and Iowa.

Klinkenstein Elected President of New York P. V. & L. Assoc.

The New York Paint, Varnish & Lacquer Association announces the election of Gustave Klinkenstein to the presidency of their organization for the year beginning May 9th, 1947.

Mr. Klinkenstein is the Vice-President and General Manager of Maas & Waldstein Company of Boston, Chicago, and Newark, and the Smith-Davis Paint Company of Los Angeles, manufacturers of specialized production finishes. He has been active in the New York Paint, Varnish & Lacquer Association for a number of years, having participated in the work of numerous committees, recently being the chairman of the Specialized Production Finishes Sales Committee and on the Executive Committee.

Gustave Klinkenstein, elected prest. New York P.V. & L. Assn.

Mr. Klinkenstein stated, that, "greater emphasis than ever will be laid on close contact and cooperation among the members and the Association to prevent the return and recurrence of bad sales practices, now that a buyers' market is developing in spite of shortages of raw materials and even higher costs." He stated further that, "the interchange of information through the medium of the Association can, in most instances, correct misunderstandings which lead to bad practices that plagued most industries before the war."

A BUYING GUIDE FOR ABRASIVES

Point No. 6

LOCAL DISTRIBUTOR SERVICE

With progressive purchasing methods dictating improved efficiency of supply, the services of your CARBORUNDUM distributor assume increased importance. Prompt delivery of standard wheels, coated abrasives, sticks and stones, and grains by CARBORUNDUM is assured from large and varied stocks conveniently located nearby. More efficient use of abrasives is promoted through a local staff, trained by CARBORUNDUM, and familiar with varied applications. They are informed on latest developments and have access to CARBORUNDUM representatives when the problem is too difficult or unusual. Intelligent handling and efficient office routine is also pointed to by some customers who prefer the personal consideration and attention rendered by these modern distribution units. These services account in part for the increasing preference for products by CARBORUNDUM. The Carborundum Company, Niagara Falls, New York.

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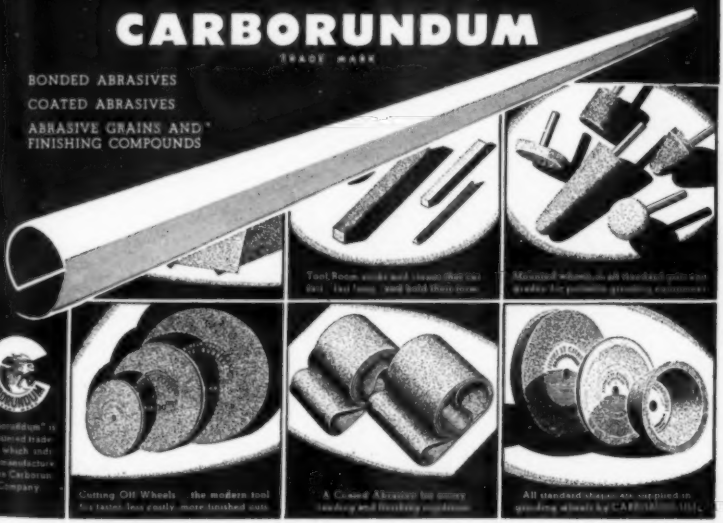

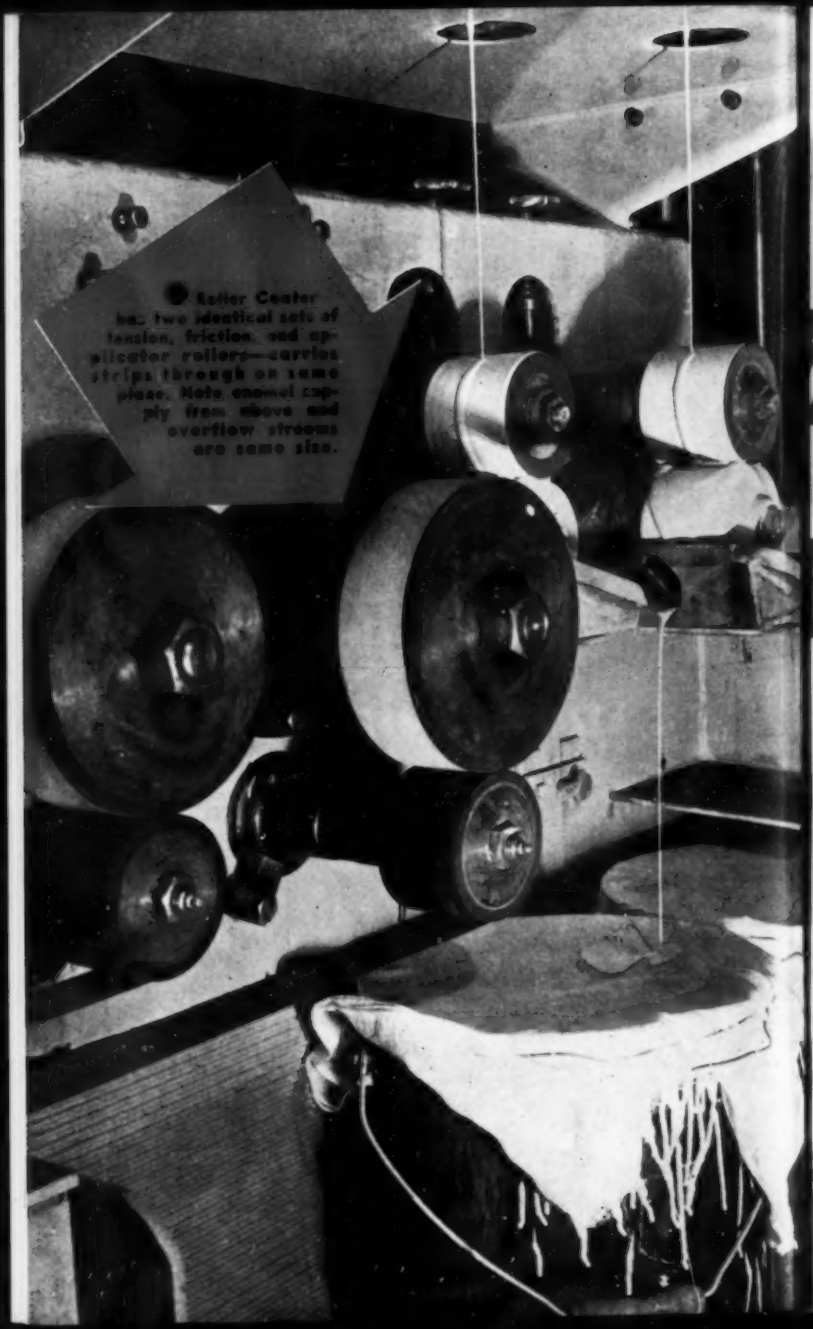
Roller Coater has two identical sets of tension, friction, and applicator rollers—carries strips through on same plane. Note enamel supply from above and overflow streams are same size.

Superintendent of M. M. Young & Co., Chicago, explains and illustrates how color is rolled on two sides and two edges of metal strips for venetian blind slats. The operation is continuous and automatic.

ROLLER COATING

ENDLESS METAL STRIPS

By I. BASSO

MEASURED production on a large quantity basis is only possible with automatic equipment. For example, we know that we coat two sides and two edges of metal strip for venetian blind slats at the rate of 2-ft. per second. During each 8-hour shift we coat 57,600 lineal feet. All of this is accomplished with two operators per shift. How this is done may best be described by a detailed explanation of the equipment and procedure.

Our finishing room is 200-ft. long. Actual space required for the finishing unit is 4-ft. wide by 150-ft. long, with 40-ft. working space at the infeed end and 10-ft. at the outfeed end.

Prepared Clean Stock is Further Treated

Coils of raw stock .008-in. thick and 2-in. wide are received in the finishing room cleaned, zinc-plated and Bonderized. Referring to one of the pictures that accompany this article, two coils are placed on castered turntables. The two at left are spares which I shall explain later. One coil at right is being fed into the unit. The other coil being used is further to the right, not shown in the picture.

The two strips of metal pass through a 6-ft. gas-fired hydrogen relief oven at a speed of 60-ft. per minute. Oven temperature is 600° F. This operation is necessary to remove any and all hydrogen gas trapped in the pores of the metal from zinc plating and other surface preparation. Otherwise the enameled surface would have thousands of tiny blisters. Upon leaving the oven, the hot strips travel 100-ft. to allow their temperature to come down to 90° F. before they enter the roller coating machine. This roller coater is only 50-ft. away from the hydrogen relief oven, but the strips of metal travel up to and over two idler pulleys at ceiling

Sure Cure for Finishing Room Headaches...

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packs your product with the proved sales-appeal of a hammered-metal-like finish... reduces rejects... helps finishers stay out of trouble because it's so simple to use.

If you're looking for a finish that's easy to apply, yet gives your product that "look" that appeals to buyers — Hammertone is your answer.

Available in practically all colors, Hammertone can be sprayed on either metals, wood or plastics with equal success. It bakes or air dries to a tough, smooth finish with the striking appearance of hammered metal. Weld marks and small surface defects are hidden by Hammertone, which — in addition to its uniform results in application — reduces rejects to a minimum.

For further information, write for Technical Bulletin #115 or ask your M&W representative. Color card is available.

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height and back. Two large fans aid in cooling the metal strips.

You will note, in another picture, that as the strips descend from the ceiling pulleys they pass under two idler pulleys, then between two pairs of revolving bristle brushes, and finally between two pairs of felt pads. These brushes and pads remove any residue from Bonderizing and leave both sides of the strips clean as they enter the roller coater.

Machine Coats Two Strips All Around at Same Time

The roller coating machine has two identical units for coating strips. Referring to the close-up view, strips enter from your left under the "bite" or tension roller and pass around and over the large friction roller before they reach the coating rollers. Here both sides of the strip are coated to a thickness of .003-in. The thickness of the coating is determined by the amount of pressure between the coating rollers. Edges of the strips are coated by the back-flow between the two coating rollers.

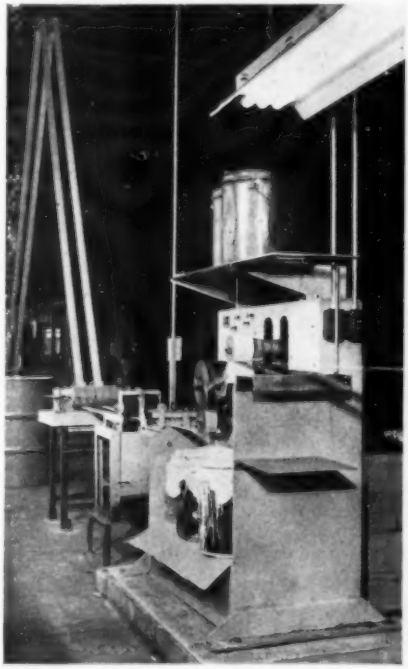
In the close-up view, notice the size and position of the stream of enamel flowing from the containers mounted on top of the coater. Each stream must hit the top roller just back of center; then it follows the periphery in a slightly flatened cylindrical form until it becomes lost in the back-flow between the two rollers. Drain pans direct the over flow through cloth filters into containers. This overflow is returned at intervals to the containers on top.

It should be noted that none of the applicator rollers actually operate in a reservoir of enamel. The only source of enamel supply (for both applicator rollers) comes through metering valves from the containers above the machine. All tension and friction rollers are steel covered with rubber. The applicator rollers are solid rubber. Tension rollers operate counter clockwise; friction and applicator rollers rotate clockwise.

The Oven Drying Setup Includes Stepped-up Heat

Upon leaving the roller coater, the strips travel approximately 10-ft. which allows sufficient time

View of roller coater, looking toward the hydrogen relief oven. Outfeed end is in foreground; infeed end is in background. Starting at left are idler pulleys, then upper and lower bristle brushes, then two pairs of felt pads under hold-down clamp. A stile is at right for filling supply tanks.



View of approach at infeed end. Ends of metal strip on spare reels at left are ready to be spot welded to last ends of strip being fed into unit. Two fans aid in cooling the strip before it is coated. A wood strip on the floor holds turntables against the pull of the strip in the unit. (Courtesy Gasway Corp.)

for enamel to flow-out before it enters the 60-ft. oven for one minute of baking. Coating strips travel through the oven side by side on the same plane. This oven has a horizontal baffle plate (making it two story inside) through which heated air is forced from the three gas-fired heating and circulating units. The heated air is drawn back down to the lower section and back into the units to be again heated and recirculated.

Solvent fumes are exhausted at both ends of the oven. The three heat units are thermostatically controlled for inclined baking temperatures. The first unit produces a baking temperature of 112° F. for 18-ft. of oven length; the second unit gives a heat of 300° F. for 12-ft., and the third unit produces a heat of 540° F. for 30-ft.

Cooling Heated Strips and Winding Them on Reels

Immediately after leaving the oven the coated strips pass under and over three sets of idler pulleys to travel up to ceiling level and back down again to cool. A large fan aids in cooling the coated strips as they travel to and from the ceiling.

As the coated strips leave the third set of idler pulleys they pass over and around two driver rollers, thence over a tension roller, under a counterbalanced hold-down roller and onto power winders which are equipped with an expansion clutch center drum. By this means a completed roll may be removed. For better understanding I have shown the driving and winding unit in a drawing. This is the mainspring of the entire unit.

(Continued on page 64)

Photos courtesy J. P. Seeburg Corp.

Steel, zinc, and aluminum—and their alloys—now can be treated on one Bonderizing* line. Here's real production economy for manufacturers with mixed metal production. On all these metals, this efficient Bonderizing process produces tight, fine-crystal phosphate coatings which anchor the final finish, protect the metal against rust or corrosion, add greatly to the service life and lasting beauty of the products.

Bonderize steel, zinc, aluminum—and zinc and aluminum die castings, too — all on the same line. Get full information now!

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PARKER PRODUCTS CONQUER RUST

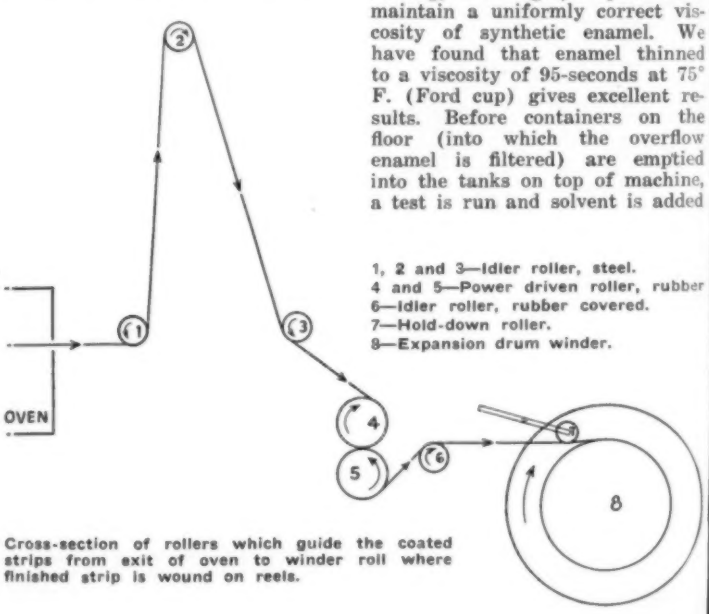
Ends of Strips Are Lapped to Make Metal Strip Endless

When I say that this is a continuous operation, I mean just that. The entire unit is never empty of strips. Going back to the starting point, as reels of metal strip being fed into unit become exhausted, a spare reel is pushed into position and the two ends of strip are lapped about 6-in. and spot welded. When this lapped section arrives at the winder, the section is clipped out with a pair of snips. The completed roll is removed and the end of the strip coming through is attached to a pin in the winder drum. The unit is not shut down during these splicing and cutting operations. So continuous is this operation, that before the unit can be shut down it is necessary to spot weld two 200-ft. sections of old strip (kept for this purpose) to the ends of the last reel. When the old strips pass through the drive rollers the unit is stopped. The old strips remain in the unit until it is started again.

Secret of Success in Coating with This Setup

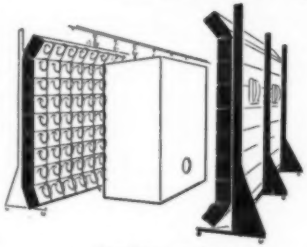
The secret of successful operation of this machine is that: 1) strips are pulled through the entire unit from reels to the winders; 2) through a series of tension and friction rollers, the strips are maintained sufficiently taut so that after coating, it is possible for them to travel 75-ft. unsupported.

Due to the necessarily short space possible for flow-out after coating, it is highly important to maintain a uniformly correct viscosity of synthetic enamel. We have found that enamel thinned to a viscosity of 95-seconds at 75° F. (Ford cup) gives excellent results. Before containers on the floor (into which the overflow enamel is filtered) are emptied into the tanks on top of machine, a test is run and solvent is added

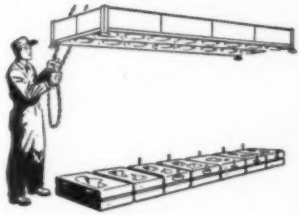


Cross-section of rollers which guide the coated strips from exit of oven to winder roll where finished strip is wound on reels.

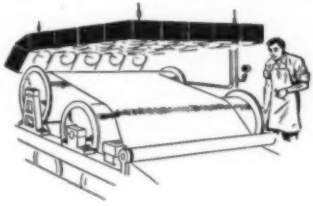
Whether you want to . . .



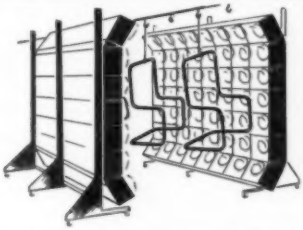
. . . bake a finish,



skin-dry sand molds,



dehydrate textiles,



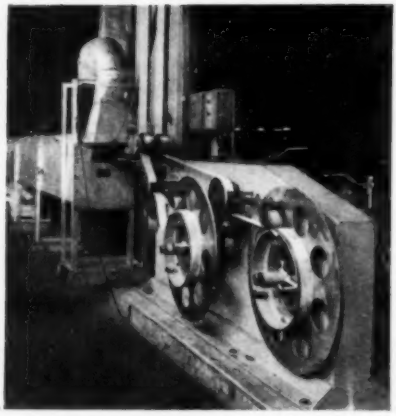
or de-grease metals

1. Use Infra-red
2. Make sure the lamps are G-E!

Infra-red is winning wide acceptance as a basic tool of industry. The reasons are simple: (1) Low first cost. (2) Easily installed in any production scheme. (3) Produces quick low-cost heat. (4) Permits efficient use of space. (5) Lower standby losses. (6) Employee safety and comfort. (7) Better control of product quality.

For best results with infra-red, consult a recognized oven manufacturer, and make *sure* you get the right infra-red lamps! General Electric makes a full line, from 125 to 1000 watts, in both reflector and clear bulb types. Send for free bulletin on infra-red. Write to General Electric, Nela Park, Dept. I-6,, Cleveland 12, Ohio.

G-E LAMPS
GENERAL ELECTRIC



Final outfeed end of continuous coating and baking unit, showing the power drive rollers and finished strip winders. The motors are on the other side of the machine.

to bring the material to the proper working viscosity.

The entire unit requires only two operators working as a team, spot welding ends of strip at the infeed end, removing completed rolls from the winders, testing viscosity and keeping supply tanks filled.

Pittsburgh Plate Glass Co. Acquires Forbes Varnish Co.

Pittsburgh Plate Glass Company has acquired the business of the Forbes Varnish Company of Cleveland, Ohio, according to an announcement by Harry B. Higgins, president of the Pittsburgh firm. The new unit will continue operation as the Forbes Finishes Division of Pittsburgh Plate Glass Company.

A forty-year-old manufacturer of specialized production finishes, the firm was incorporated in 1907 as the Banner Varnish Company. In 1909 the name was changed to the Forbes Varnish Company.

Located on a seven acre tract at 3800 West 143rd Street, in Cleveland, the Forbes Finishes Division facilities include fifteen plant and office buildings.

Charles H. Reed, president of the Forbes Varnish Company during the past 11 years, has been appointed divisional director for the Forbes Finishes Division. Mr. Reed has been associated with the Cleveland firm since 1922.

"All 135 employes of the Cleveland unit will be retained," according to Mr. Higgins. "Lyman J. Lamb will continue in charge of sales and Willard G. Loesch in charge of production.

"The acquisition of the Forbes Varnish Company will add appreciably to the industrial finishes capacity of Pittsburgh Plate Glass Company's paint division," Mr. Higgins stated.

Principal outlets for the newly acquired division's specialized production finishes are the automobile, home appliance, furnace, heater, air-conditioning apparatus, office appliance, metal furniture, wood products, rubber products, machinery, tools and equipment industries.

These finishes consist principally of primers and undercoats, lacquers and enamels, which are factory applied to manufactured products of a durable and semi-durable nature. They comprise oleoresinous, phthalic alkyd, alkyd ureamelamine, and nitrocellulose coatings.

Morsch Becomes Manager of J. O. Ross Corp. in L. A.

The new manager of the Los Angeles office of the J. O. Ross Engineering Corp. is Richard W. Morsch, who for the past ten years made his headquarters at the New York offices of the firm. He succeeds W. A. Schoenbeck who is returning to the New York office.

R. W. Morsch, new manager L.A. branch.

Mr. Morsch is a graduate of the University of Colorado and joined the Ross organization in 1937 as a specialist in heat treating of magnesium and aluminum. With headquarters in Los Angeles, he will direct all sales and engineering in connection with the firm's varied line of air processing systems in the Pacific Coast territory.

Polytherm

A NEW ORGANIC FINISH WHICH WITHSTANDS EXTREME HEAT

Polytherm* is the answer to industry's search for a durable organic finish which can really withstand extreme heat. Tests by leading railroads have shown that Polytherm lasts ten times as long as finishes previously used on engine fronts. Polytherm's unusual affinity for aluminum makes it invaluable wherever bonding to aluminum plus high heat resistance are required.

Polytherm finishes are naturals for use on electrical equipment such as generator housings, ironers, hot plates, and space heaters. Factory maintenance men find Polytherm excellent for use on chimneys. Polytherm for stoves withstands over 500°F. without yellowing . . . can be applied at one-half the cost per square foot of inorganic materials currently in use for the same purposes. In fact, wherever heat resistance plus extreme durability is desired, Polytherm can do a better job. For full information send for booklet on POLYTHERM. Write Interchemical Corporation, Finishes Division, 330 Fifth Avenue, Empire State Building, New York 1, N. Y.

Interchemical Finishes

MAKERS OF POLYMERIN—THE ORIGINAL SPEED-BAKED FINISH

*Reg. U. S. Pat. Off.

Products hanging from overhead conveyor are passing through water-wash spray booth, after having come through infra-red tunnel at right—for preheating.

Preheating Products Before Painting

In this setup products are heated before being painted instead of afterward, to speed up drying of paint coatings.

By GILBERT C. CLOSE

MANAGEMENT of the new McCulloch Motors Corporation plant in Los Angeles, Calif., has succeeded unusually well in blending finishing operations with its production line. The conveyor that transports engines from final assembly to the test room does not stop in the finishing department. Engines are painted "on the fly," so to speak, as they move along by conveyor through the single water-wash paint booth. The efficiency of this installation is attested by the fact that 4600 engines a month are called for by the current production schedule.

A unique feature of the finishing department is a large bank of infra-red lamps used to preheat the engines before their entrance

DSM SPECIAL MOTOR WASHING MACHINE

MODEL BD-1309

MOTOR CLEANING EQUIPMENT: *Washing machines for cleaning tear-downs. Kerosene spray or similar solvent usually used as the cleaning medium.*

A	Width (Working Clearance)	44"		
B	Height (Working Clearance)	24"		
C	Width Over All	65"		
D	Length Over All	26'8"		
E	Height Over All	8'0"		
G	Wash Pump Capacity, G.P.M.	450		
	Motor Speed R.P.M.	1750		
	Motor H.P.	15		
	Wash Tank Capacity, Gals.	750		

PLANT ENGINEERING: *Consulting assistance in plant layout to coordinate departmental operations, our experience dated from 1917 in this field.*

Such plant layout may be based on increasing production beyond present capacity, or it may be a rearrangement in this post-war period when operations are conducted under a new set of conditions.

FORMED COWLINGS, PANELS, ETC.: *To your specification, and of light metal alloys as required. Weldments and brazed assemblies may be under controlled atmosphere.*

PILOT EQUIPMENT: *Sample size equipment for development of heavy equipment.*

VERTICAL CORE BAKING MACHINES • CONTINUOUS HORIZONTAL BAKING OVENS • BATCH TYPE CABINET OVENS • DRAWER OVENS

DETROIT SHEET METAL WORKS, 1301 OAKMAN BOULEVARD, DETROIT 6, MICHIGAN

DETROIT SHEET METAL WORKS

DETROIT -6- MICHIGAN

to the paint booth. The spray-painted engines dry rapidly, and can be handled by the time they reach the testing department. Effects of this preheating on the aluminized lacquer and blue enamel finishes are claimed to be favorable. Operators, wearing gloves, experience no difficulty in positioning the hot engines for spraying.

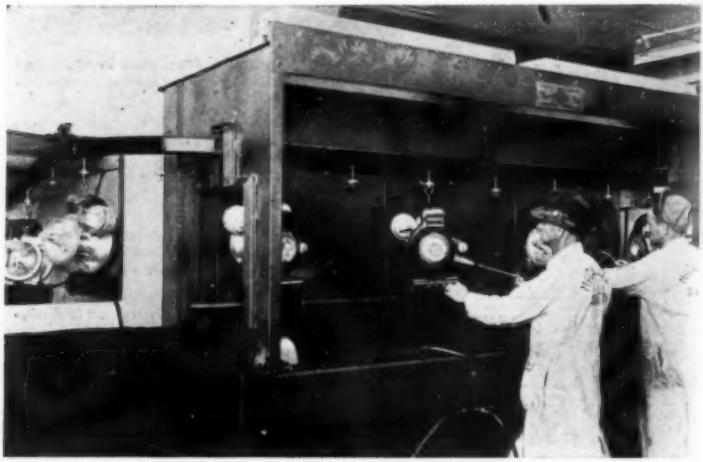
When engines leave the test room, they continue on a conveyor through a second paint booth where touch-up work and final inspection are conducted simultaneously. Two operators man this booth. One attends to color touch-up work on the cowlings, fuel tank and safety guards; the other one does touching up with aluminized lacquer on the engine body. Each man inspects those portions of the engine that are concerned with his work.

This double function of the touch-up booth has proved to be especially successful insofar as product quality is concerned, and there is an appreciable saving of both time and labor requirements.

Prepare for Summer Temperatures

SPECIAL attention should be given to the solvent department when preparing the plant for summer temperatures. Since solvent volatility increases with higher temperatures, there is likely to be more solvent vapor in the workroom air during warm weather, unless sufficient ventilation is provided. Dermatitis difficulties also may increase at this time.

Most solvent departments are



From the test room, engines continue on conveyor through touch-up booth where, at the same time, they are given final inspection. From the touch-up booth, engines travel directly to shipping department.

ng material

Price-per-gallon marks only the beginning of your finishing expense . . . to get a true estimate of the *total* cost, you have to go right to the point where the finished product leaves your plant.

That's because there are many in-between stages where correct methods . . . and the right finish . . . can effect real savings. Reflected in your final "bill" are such factors as labor time and costs, storage space plus the time spent in drying, expensive protective packing, and even possible rejects.

Only quality finishes can bring overall economy to the many stages of your finishing operations . . . and keep end cost down. In addition, it takes a quality finish to build up the inestimable asset of customer goodwill, through appearance and performance, that increases the prestige of your own business.

Let Du Pont Finishes Engineers show you . . . through practical, proved methods . . . how your total finishing costs may be reduced to a minimum.

E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington 98, Del.

DU PONT

REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

equipped with mechanical ventilation throughout the year. During the summer months, care must be taken so that the tendency of employees to open windows or change the exhaust rate, to increase personal comfort, does not interfere with the mechanical ventilation. The opening of a window near a degreasing tank, for example, may set up a current of air which will reduce the efficiency of the exhaust system and blow vapor into the workroom. Guards may be set up at the side of the tank to permit opening windows without disturbing the ventilating system.

Some solvent departments may depend upon natural ventilation, such as windows, skylights, etc. There are times during the summer when such ventilation is likely to prove inadequate, especially on days when there is little breeze. For small solvent operations it may be possible to overcome this difficulty by providing fans in the workroom. It is important, that the fans are not located where they will increase the evaporation of solvent, or blow solvent vapors into the breathing area of workers. In most cases, local exhaust ventilation is desirable.

A survey of ventilating equipment with these factors in mind should be made before hot weather starts. The Division of Industrial Hygiene in many states provides ventilating engineers who can assist industry in making this survey.

During the summer months, the incidence of dermatitis may rise because of increased exposure of the skin to various irritating substances, including organic solvents. Sleeves rolled up, protective clothing may be discarded because it is uncomfortable, and increased exposure to sun may make the skin somewhat more susceptible to irratation. Moreover, protective creams which may prove of some value during winter months are rapidly removed by perspiration.

Steps which may be taken to reduce dermatitis during the summer include: provision for frequent washing with a mild soap, followed by application of protective or lubricating cream; an adequate supply of comfortable work clothing to permit frequent changing, plus the use of light gloves and aprons of suitable materials to protect against solvent; provision of a shower for use at the end of the shift; education of the employe in the importance of cleanliness to avoid skin difficulties.—*Safety Research Institute.*

Monsanto Chemical Sponsors Educational Program

Three industrial scientists have been awarded leaves of absence at full salary for an academic year of study at universities of their choice, the Monsanto Chemical Company announced today. The announcement of the awards, which embrace the school year 1947-48, was the second step in an annual Monsanto program which will enable a group of scientists to renew their studies and to establish close cooperation between industry and university laboratories.

The program, a new move in American industry, was inaugurated last year when four Monsanto scientists received awards. This year's group includes Milton Kosmin, a native of Chester, Pa., and a graduate of Pennsylvania State College with a B. S. Degree in Chemistry in 1934. He has been engaged in fundamental and process development research at Monsanto's Central Research Department at Dayton, Ohio, since June, 1935.

Also names for the award is Costas H. Basdekis, a native of New Hampshire and a graduate of the College of Engineering at the University of New Hampshire with a B. S. Degree in Chemistry in 1942. Basdekis is a research chemist in Monsanto's Plastics Division at Springfield, Mass. The third scientist selected is Paul John Stuber, a native of Miller City, Ohio, and a graduate of Ohio State University with a B. S. Degree in Chemical Engineering in 1942. Stuber at present is a supervisor of the chlorine department at the company's plant at Monsanto, Ill.

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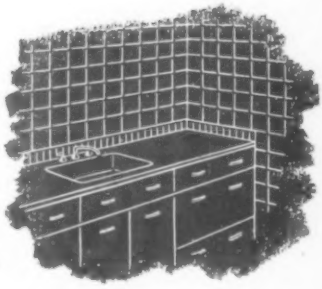
Vedoc

a better baked finish
for **STEEL WALL TILE**

CHARACTERISTICS:
Complete color stability in white and pastel shades . . . Highly resistant to soaps, alkali, cleaning detergents and moisture . . . Maximum protection against rust . . . Mar resistant . . . Easily kept clean and sanitary.



APPLICATION:
Only one coat is needed. Finish is sprayed on.

BAKING TIME:
Convection oven schedule—20 minutes at 300°F. Single bake. Ideal for infrared. (Optional schedules available.)

All Vedoc finishes are developed for a specific use, then slightly varied to best fit into each customer's setup. Write today for more information about these "better finishes". Also, ask for your copy of the new booklet, "A Review of Product Finishing with Organic Coatings".

LIQUID PLASTICS DIVISION
FERRO ENAMEL CORPORATION
CLEVELAND 5, OHIO

Checks in the Finish of Veneered Surfaces

When checks or cracks appear in the finished surface of any veneered work, the finish or finisher is almost sure to be blamed for it, although the actual cause may lie in the veneer or the way it was cut, stored, laid, glued or dried.

By RICHARD BLACKWELL

CHECKS that show up in the films on plywood furniture pose a troublesome and little-understood problem. Usually checks appear within a few days after the furniture is finished. It is difficult to distinguish the difference between true cracking of the finish and checking of the veneer; nevertheless the supplier of finishing materials is usually called in for consultation on the problem.

True cracking of the finish generally shows up as a series of fine hairlines which can be seen best when viewed at an acute angle with the light source. When the fine lines cross the grain of the wood you can be sure the defect is in the finish. When the cracks are in the same direction as the wood grain, but are not wide open and do not extend into the veneer itself, you can be reasonably sure it is a finish defect. However, when the cracks are wide open and cracks in the veneer itself appear under a hand lens, then the veneer is checked.

In extreme cases of veneer checking, cracks in the finish may show up across the grain. With a good hand magnifier you can actually see the cracks in the veneer, which is how you can determine with certainty whether or not the condition is really veneer checking. Any finish will show cracks over checked veneer, therefore some care is required if the real source of trouble is to be determined.

To Avoid Checking, Know How Veneers Are Cut

In order to understand and avoid or prevent veneer checking, it is necessary to know something about how wood veneers are cut. Practically all veneer used in furniture plywood is shaved from the log with a sharp knife. Sawed veneers are rare today because half or more of the log goes into sawdust. Only the most highly figured, rare woods

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A Decorative Finish

MEARLMAID Pearl Essence is being used on hundreds of different products to produce a decorative and attractive effect.

Investigate the numerous advantages of a Mearlmaid Finish before you select the final coating. Its sales appeal and merchandising value are important.

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Has High Reflective Light Value

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"WORLD'S LARGEST PRODUCER OF PEARL ESSENCE"

are sawed into veneers when or because they are too fragile to be knife-cut successfully.

In preparing logs for knife-cutting, they must be conditioned by hot moisture—steam or hot water for several days. This is necessary because dry wood is not flexible or elastic; it tends to crack and splinter like a dry shaving will break easily between your fingers. Also, wet wood will not dull a sharp steel cutting edge as quickly as will dry wood. The hot moisture conditioning softens the wood fibers, saves knives and lessens breakage losses.

Knife-cut veneer is produced by two processes. In the process known as "slicing", veneers are cut by clamping a log on a moving bed and moving it past a long, fixed razor-sharp knife. In the rotary process the log is mounted in a massive lathe and revolved against a long sharp knife. The veneer is peeled off in a continuous sheet, much as you would unwind paper from a large roll. This process is used for cutting veneers in various thicknesses up to 3/16-in.

There's a Loose Side and a Tight Side on Veneers

Half-round veneers are cut by a variation of the rotary process. This process is used to produce figured veneers from straight logs, or highly figured veneers from stumps and burls. Walnut is often cut in this manner. The log, stump, or burl is placed off center in the lathe and single sheets are taken off by the knife. Sometimes the log or stump is sawed in half lengthwise and fastened to a rotating iron bar or "stay log" mounted in the lathe. As the log rotates, the knife strikes the growth rings at an angle which diminishes rapidly until half way through the cut, when the process is reversed.

In all knife-cut veneers the side next to the knife is expanded as it is cut, and it is quite likely to develop fine checks or cracks. By proper regulation of the pressure bar this cracking can be minimized. Well-cut veneers show a minimum of checking. However, it is practically impossible to knife-cut veneers over ⅛-in. thick without having one side checked.

The side of the veneer next to the knife is called the open or loose side; the other side is the closed or tight side. Checks in the open side do not interfere with gluing or the strength properties of the plywood. However, they do cause difficulty in finishing. For this reason the loose side of veneer should never be exposed in the finished panel if it can be avoided.

When figured face veneers are matched to produce a symmetrical pattern some of the loose side must be exposed, of course. If the veneer is well cut this causes no trouble. If checks do show, and if the veneer is thoroughly dry, filling with paste wood filler will enable one to produce a smooth finish that will cause no trouble later.

Veneer Checking and How to Avoid It

Veneer checking is often caused by needlessly laying up panels with the open side of the face veneer exposed. The checks do not show up while the veneer contains considerable moisture, as it may after gluing and during finishing, especially if the plywood is not properly conditioned after being made. However, as the veneer dries out during and after finishing, defects begin to appear as the wood shrinks.

Veneer checking can be avoided by several means. Always have the closed side of knife-cut veneer ex-

Pedigree MAKES A DIFFERENCE!

Again and again Pedigree Industrial Finishes have demonstrated their superiority on hundreds of products. Toy trains and automobiles ... and the real "McCoys" too, look better, perform better — are better, because Pedigree makes the difference!

Manufacturers in every industry rely on the combined experience and knowledge of Pedigree Technicians to help solve their most difficult finishing problems—those involving extensive research, special formulations, or unusual application.

If you need an improved finish to add eye-appeal buy-appeal to your product, increase its service life, or reduce production cost, write today.

The P·D·GEORGE CO·

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posed whenever at all possible. Always condition plywood before finishing, so that the face veneers will be stabilized. Be sure the plywood has a uniform, low moisture content (6% to 8%) before finishing. Avoid excessive moisture, such as may occur from too liberal or too thin (watery) glue spreads. Be sure the veneer you purchase is of good quality, having little or no checking on the open side.

If you do have veneer checking during or after the finishing process, then you must clean off all the old finish, dry the wood to a low moisture content, sand the surface smooth, and refinish. Occasionally it is sufficient to wet-sand the finish down and apply one or two extra coats, but usually the cracks are too deep for this. As in most other finishing troubles, it is easier to avoid veneer checking trouble than to correct it.

More accurate control and appreciably large economies in melting and casting molten aluminum is forecast in an announcement by Brown Instrument Co., Philadelphia, of the development of new aluminum processing temperature measuring equipment.

Wood Finishes Stressed at Walnut Veneer Meeting

Members of the American Walnut Manufacturers Association were told at their annual spring meeting that, "Greatest furniture manufacturer and dealer interest is in wood finishes." Burdett Green, Manager of the Association continued, "They want more durable protection than ever, and tints lighter than prewar tones, but darker than bleached finish. Use of proper sealers in combination with rose or gray filler have given some of the most appealing finishes . . . More new designs and more new finishes than any time since Pearl Harbor are predicted for the forthcoming Summer Market."

Jones-Dabney Co. Elects New Vice President

Jones-Dabney Co., Louisville, Ky., the Industrial Division of Devoe & Raynolds Co., Inc., announces the

Mr. E. F. Musterman elected new Jones-Dabney vice pres't.

election of Mr. E. F. Musterman as Vice President. Mr. Musterman is in charge of all manufacturing of the Louisville, Ky., Detroit, Mich., and Newark, N. J. plants. The company manufacturers lacquers, varnishes, enamels and synthetic resins.

Longnecker New Sales Administrator for Zapon

The Zapon Division of Atlas Powder Co., announces the appointment of K. R. Longnecker as sales administrator. He will supervise sales work on Zapon's complete line of industrial product finishes.

Mr. Longnecker started with Zapon in 1929 as a chemist. He later became a salesman and covered Chicago, New York and other territories, returning to Stamford to work on sales correspondence and service. In 19[illegible] he was placed in charge of the New England sales division. His training and service experience should prove useful to the company and its many customers.

Bulletin on Conveyor Belts

A new four-page bulletin on conveyor belts, featured by a guide on the selection of grades needed for specific services, has just been published by The B. F. Goodrich Co., Akron, Ohio.

The bulletin gives details of each of its brands and special constructions available in various belts, as well as a list of the applications in which they are most commonly used.

RANDOLAC

A Really Superior Lacquer for

WOOD and METAL

Randolac has an unsurpassed combination of hiding power, build and exterior durability on either wood or metal.

It is our finest quality all purpose lacquer.

Randolac is available in full range of colors.

We'll be glad to send you a Randolac color card—send for it today.

RANDOLPH PRODUCTS COMPANY

Carlstadt, New Jersey • Tel. Rutherford 2-3700

DOPES • LACQUERS • ENAMELS

We are a small manufacturer of store fixtures. Our finisher is having trouble blending filled nail holes into the finish. Do you have any suggestions that might be of help to us? We will appreciate any assistance you can give us.—D. S.

Filling Nail Holes and Finishing Over Them

By EDWIN HOGSTROM

IN MANY KINDS of cabinet and furniture work, after gluing and joining, some parts require additional nailing. After these nails are set there remains the problem of filling or patching up the set nail holes to match the rest of the work in such a way that these filled places will not show after finishing. This is not the least of numerous other problems which arise to challenge the finisher of wood products from time to time.

Several ready-prepared nail-hole fillers are on the market, and some are advertised in this magazine—or they can be furnished by concerns who do advertise wood finishing materials.

I believe I am safe in saying that the most widely used of all crack and hole fillers is ordinary water putty. This material comes in powder form and is of a light cream color when mixed. To change its color, the user simply adds some dry earth stain colors which are obtainable at any paint store. These stain colors will include raw sienna and yellow ochre for oak finishes; raw umber and burnt umber for walnut; burnt sienna for mahogany; white lead (powdered) or whiting, mixed with other light colors to match, for blond and harvest finishes.

Experiment to Find Which Color or Shade is Best

By doing a little experimental intermixing of the colors just named, with water putty, a finisher can soon find out just what colors and how much of each to use to match any color or finish that may be desired. Expert finishers fill the hole a little higher than the surrounding surface, and let the patch dry thoroughly; then they carefully sand the surface down smooth with a block and abrasive paper.

Try to mix the patching material so that it is slightly darker in color than the finish required. When it is stained, the patch will not take stain as readily as the porous wood, and as a result, the whole piece will blend out to a uniform color after finishing. Another point to keep in mind is that when the repair putty or nail-hole

Standard
ALPO
FINISH

DEPENDABLE BEAUTY

ALPO Finishes have been time-tested in actual service proving their complete dependability as well as their lasting beauty . . . Long enough to have earned consumer acceptance and manufacturer preference as the most popular protective coating of the year.

ALPO gives the product a novel and pleasing appearance of richness and depth, yet is really satiny smooth. Easy to apply; no special bake; one coat gives 50% greater coverage. ALPO is a utility finish, too, with high resistance to abrasion, heat, cold and humidity. Comes in most pastel shades.

SINCE 1870

STANDARD VARNISH WORKS

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STATEN ISLAND, N. Y.

2600 Federal Street
CHICAGO, ILLINOIS

Engineers of Product Finishes

filler is wet it will be a shade or two darker than when it dries.

An emergency patching material can be made of the fine powdered wood dust from the same wood to be patched; for example, walnut dust for walnut wood, mahogany dust for mahogany, etc. When collecting the fine wood flour from a sanding machine, be sure to sift out the larger grits and also any foreign matter before trying to use it as patching material. Clean wood flour is really necessary.

Wet a small amount of this wood flour with water to make a stiff paste; then add a few drops of ordinary cabinet glue to serve as a binder. The amount of glue will determine the porosity of the patch after the "filler" dries. If no excessive amount of glue has been added, and if you are patching say walnut wood with a walnut flour mixture, there will be difficulty in even finding the filled nail holes after finishing.

Avoid Repair Putty That Contains Oil

Prepared paste wood-repair fillers are also available, but because of the oil content in some of them (when used in too liquid a state) certain ones may leave an oily ring around the filled nail hole. Also, they are slower drying and, unless the patch is allowed to become thoroughly dry before any subsequent finishing is done, an oily ring will show up in the final finish. A bluish haze may appear around the filled hole; the finish will not polish evenly around it and if a lacquer finish is put on over it the place may eventually turn white.

A cellulose fiber type of patching material, such as plastic wood, wood dough, etc., is also on the market and in use in many shops. These materials are soluble with lacquer thinner and, of course, will harden in the can if left exposed to the air for a short time. They are good and serve their purpose, but they also have some undesirable features. They come in colors or can be colored with earth colors or aniline colors.

Patches made of the materials just described do not take stain so easily, therefore such patches or fillings usually require more or less touching up. They are harder to sand than water putty patches but they are much stronger in larger repairs. Always build up the patch, with this type of material, to a little above the surface so as to allow for shrinkage. It does not matter what finish is used —lacquer, varnish, shellac, synthetics—so long as the filler used is dry when finishing begins.

Stick Shellac Has Many Desirable Features

If the nail-hole filling or repair work is fine enough and can stand the cost of using it, stick shellac can be used either before or after staining. First, obtain a panel of the finish to be required and then match a stick of shellac to the finish. When finished, the filled hole will not be noticeable. This calls for skillful work by an experienced patcher.

There are other materials and methods, but what I have described in this article include those most widely used today. Personally I prefer the water putty, or the wood flour mixtures. A little experimenting with either material and with colors will soon lead to a perfect match in all repair finishing. Then remember how this material was mixed, so you can duplicate it when necessary. This work calls for exceptional skill.

Sustained Quality

IN

LACQUER THINNERS

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Letters from Readers

Fruitwood Finish

Please advise what a fruitwood finish is for maple and birch, and how you can obtain that finish?—B. & B.

Can some reader advise us what type of finish this is?—Ed.

Pearl Essence?

When attending the Jamestown Furniture Mart I saw bedroom suites in a maple finish. This finish seemed to be of pearl sheen and here we believe this was pearl essence. This finish has the appearance of bleached mahogany as to color, except that it has a glow under the polished lacquer finish. It is difficult to explain this finish, but we hope from this description that you will know what we mean.—G. & B.

Spray Painting

In the July issue (1946) of INDUSTRIAL FINISHING, there was an article on Spray Painting by Floyd Cohagan. I would very much appreciate your assistance in obtaining the address of this writer so that I may be able to get some information from him regarding Spray Painting. —C. C. D.

Information given.—Ed.

Tear Sheets Wanted

Would appreciate receiving a copy of the article entitled, "Synthetic Enamel Versus Lacquer," by Dale W. Musselman, which appears in Jan. 1947 issue of INDUSTRIAL FINISHING. —A. B. S. Co.

Please send me tear sheets of the article entitled, "Conditioning the Water for Wet Spray Booths," by Samuel J. Miller, which appeared in the February 1947 issue of INDUSTRIAL FINISHING.—K. D.

We are interested in receiving a copy of the article entitled, "Fallacy of High Solids in Lacquer Sealers," by Rollin H. Wampler, which appeared in the October 1944 issue of INDUSTRIAL FINISHING.—B. F. Co.

We are very much interested in receiving tear sheets of an article entitled, "Tests to Predetermine the Performance of Furniture Finishes" by H. H. Watjen, which appeared in the March 1947 issue of INDUSTRIAL FINISHING. The two standard forms are of particular interest to us for recording essential information of finishing material under test.—M. Mfg. Co.

Tear sheets supplied.—Ed.

Vehicle for Dyes

Please advise us if you have any knowledge of something other than lacquer to be used as a carrying agent for brilliant transparent dyes, something that will be quick drying.

Our interest is in something that would not have the inflammable qualities of lacquer.—G. G., Inc.

Phosphorescent Paint

In your October 1946 issue of INDUSTRIAL FINISHING there appeared an article entitled, "Luminescent Color Coatings," by J. P. Callahan. Could you please furnish us with names of companies where we may be able to obtain the phosphorescent paint referred to in the article?—K. & T.

Information given.—Ed.

Wrinkle Finish

We are very much in need of a wrinkle air dry black finish which is to be applied without baking on metal. Do you know of any company within our range of shipment that could supply us with such a finish? We know of one company on the West Coast but charge of freight makes it impossible to keep up shipments.—P. O. L. (Conn.).

Plastic Coated Wire

On looking through the April issue of INDUSTRIAL FINISHING, the writer noted with interest, an inquiry from a reader referring to an article which

TOUGH.. DURABLE.. ADHESIVE!

RED X

FUSION TYPE FINISHES

Because they actually fuse together and become one, Red-X Fusion Type Finishes offer toughness and adhesion exceeding that achieved through the costly, time consuming method of applying several coats that must be dried individually.

Simply apply Red-X Fusion Type Finishes in your usual manner, marching right through an entire finishing operation without wasteful "time outs" for drying . . . without costly drying equipment.

Red-X wiping materials clean up easily and quickly, leaving no gummy or sticky residue . . . and no special thinners are required.

This easy, dependable method of application has enabled many Red-X users to go from RAW WOOD TO FINISHING COAT IN AS LITTLE AS ONE HOUR . . . and without the application of heat!

Get the full story of Red-X Fusion Type Finishes. Write to Reliance Varnish Company, Inc., 915 E. Kentucky St., Louisville 4, Ky.

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RELIANCE VARNISH CO., INC.

LOUISVILLE, KY. • CHICAGO, ILL.

appeared in the February issue on plastic covered wire, and requesting the name of the manufacturer.

Since we are fabricators of plastic coated wire in volume, we would appreciate it if you could let us have the name and address of the firm inquiring in this particular instance.—New England Tape Co., Inc.

Luminous Paint

Will you please advise us where we can obtain small cans of luminous paint for the retail trade?—E. Paint Co.

Information given.—Ed.

Abraser Wanted

On page 54 of your April issue is reference to the Taber abraser. We are wondering if you could put us in touch with the manufacturer so that we can secure literature and descriptive data?—W. P. F.

Information Supplied.—Ed.

Finish for Cypress

I have been asked by a manufacturer of cypress terrace furniture to ascertain the best finish for this type of furniture. Application of the finish would be by the spray method. Any information you can give me on this will be appreciated.—N. H. A.

Can some reader give us some information on this subject?—Ed.

Electrical Conducting Paint

In your October issue of INDUSTRIAL FINISHING, reference is made to "Chromoplex" an electrical conducting paint made by Titanine, Inc. I am interested in such a material. Will you please send me their full address so I may write to them for complete information?—A. G. S.

Information given.—Ed.

Table Tops Split

We manufacture dinette suites of oak and gum and are having trouble with the tops splitting.

We dry to 5% or 6% to avoid trouble in dry climates. The ends swell and they burst in the middle when shipped to damp climates. Our distribution is national. If we dry to 12%, they will end check in dry climates.

All tops are sealed bottom and top with lacquer sealer. The top coats are clear lacquer. Has anyone found a formula for sealing oak and gum to make them moisture proof so it is not necessary for our production time to become a laboratory experiment?

If you can give us this, we will dry to 5%, dip or spray at your option. This will clear up swelling and trouble in all climates.—P. Mfg. Co.

Can anyone tell us something specific on this?—Ed.

Flock Finishing

We have read with interest your article on Flock Finishing. In this connection, we shall be pleased to hear if you can let us have four copies of the article on "Flock Finishing for Aircraft."—Short Bros., England.

Striping Tools

Will you please supply us with the names of firms who could send us a limited quantity of striping brushes. These brushes are to be used for lining cars, bicycles, etc., and for thick and thin lines on finished products. These are unprocurable in this country, and as we are so dependent on them in our business we have taken the liberty of writing you on this matter.—A. L. P. Co. (New Zealand).

In a letter we are sending you a list of manufacturers of these striping brushes.—Ed.

Roller Coating Machines

In the April 1947 issue of INDUSTRIAL FINISHING you have an article on "Rolling A Color Coat on Metal Sheets." We would like to have the names of manufacturers of this and similar equipment so we may contact these people for possible application to our business.—H. F. Co.

We would appreciate receiving a list of the concerns that manufacture roller coating equipment.—J. E. Co.

Would you please refer me to manufacturers of machinery which may be used for coating paper with liquid? Any information you may be able to extend will be appreciated.—J. S.

Information supplied.—Ed.

Questions and Answers

Plastic Coating Butterflies

In the May 1947 issue of INDUSTRIAL FINISHING, on page 104, there appeared an inquiry from a reader of the magizine who was interested in applying plastic to butterflies. We referred this inquiry to several paint and lacquer chemists and received the following suggestions:

"I would recommend a solution of Vinylite VMCH disolved in Methyl Ethyl Ketone. The solution should be made quite dilute, perhaps not more than 8% to 10% solids, and it should be dipped or sprayed at low air pressure in order that the air blast will not damage the insect.

"It will air-dry free from tack quite rapidly and will set overnight to give a clear, transparent film of considerable toughness and will be truly a plastic coating."—B. P.

"It occurs to me that the best material for coating the butterflies so that you can handle them without damage would be a thin nitrocellulose solution. Airplane dope (clear) thinned down to about the consistency of water should do the trick. Use a good grade of lacquer thinner for this. Dip the butterflies in this solution carefully and allow them to dry. Then you can apply more coats of nitrocellulose solution or lacquer at a heavier consistency by dipping.

"While we have had no experience with this particular problem, the above seems a likely beginning. You might also find that thin solutions of glue or mucilage in water, or shellac in alcohol, might also serve to stiffen the butterfly so that other coats might be applied to form an interesting and ornamental novelty. The final coats should be waterproof, and we would recommend lacquer, varnish, or any of a number of plastic coatings available on the market. A water-clear, elastic lacquer, such as clear nitrocellulose airplane dope, would appear to be the best material."—R. B.

Lacquer Blisters

We manufacture a very fine Duncan-Phyfe table. The top is in mahogany Honduras veneer. The first operation is NGR stain, followed by a size coating, cut 4 to 1, and then filled, glazed, sealed and two coats of lacquer.

Our difficulty follows after the sealer coat. We are continuously getting, on the first coat, lacquer blisters. The second coat of lacquer does not blister. We thought it was in our air compressor, carrying either water or oil. A filter was put on to stop this, but that did not remedy the condition. We are convinced that was not the problem because the second coat did not blister.

We changed lacquer suppliers, thinking that a different type of lacquer might solve the problem, but that was to no avail. We tested the moisture content of the veneer

and found it was 11.4% and thought possibly that was giving us our trouble. We have tried different volumes of retarder, 3 to 5 gallons to a drum of lacquer, and thinner up to 5 gallons for one drum of lacquer.

We have checked the finishing operations from staining up to lacquer. We have checked our preasure at the tank and at the gun, also the moisture trap. So far we have been unable to find the solution to this problem.—S. I.

We suggest that you dry the plywood to a moisture content of 6% to 8%, then finish several tables in the usual manner to determine if this solves the problem. It may be a combination of moisture and air which is causing the blisters. If thorough drying of the plywood fails to give satisfactory results then it may be advisable to add a retarder to the sealer so that it will remain wet longer. This will permit better "leveling over" and permit any trapped air to escape. Also, you might try cutting the percentage of solids in the sealer material. For instance, if you are using a 21% solids sealer, cut this to 16%.

It would be well to check your filler coat for dryness. That is to say, allow extra time for the filler to dry before applying the sealer coat. While trying out these suggestions, you might experiment with your sealer material, spraying a coat on a piece of glass and when dry, spray a coat of lacquer over it and watch for blisters. Also, as a further experiment you might try substituting shellac cut 2 or 3 to 1 as a sealer material for the mahogany tops. It is assumed that you are not using forced drying on any finish coats. —P. C. B.

Spraying Polystyrene Frames

We are spraying polystyrene frames with a gold bronze powder in lacquer without any particular trouble. These frames have a floral design, however, which the customer desires antiqued. We have tried the usual method of brushing on a solution of umber and turpentine and wiping off the highlights.

This has been unsuccessful since the turpentine attacks the polystyrene and affects the adhesion of the gold. Do you know of any vehicle we can use for the umber that will not attack the polystyrene? Or do you know of some other method that will give us the desired results?—M. E. Co.

You will find that polystyrene will be attacked by any solvent that you may attempt to use, with the exception of alcohol or water. It is suggested, therefore, that you attempt to use some sort of a water base binder in which your dry umber is dispersed. Such a base could be a solution of casein, gum arabic, gum trajacanth, methyl cellulose or carboxy-methyl cellulose.

Of all of those suggested, the carboxy-methyl cellulose is probably the most logical and most easily handled. The powdered umber could be mixed in the carboxy-methyl cellulose solution on a glass slab using either a muller or a flat bladed knife. In the event the quantities involved are too large for this method of production, it is suggested that you acquire a small pebble mill and use it to grind the pigment into the solution. A very dilute solution of CMC should be sufficient to bind a large quantity of umber

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Toronto, Ontario

because the material has tremendous binding power. After the color is applied to the plastic it might be that you would want to protect it with a coat of clear lacquer.—B. O. P.

My understanding from the information contained in your inquiry is that you are not coating the frame completely with gold bronze lacquer. This being the case, the only highlight vehicle that you could use would be one that contains denatured alcohol only. Since this type of vehicle would be hard to obtain. I suggest the following:

Spray the frames completely with a clear lacquer 12% to 15% solids content, allow the frame to dry approximately 30 minutes, then spray the gold and again dry for sufficient time (approximately two hours). Then you can use an air-dry varnish vehicle pigmented with the umber or color required, with VM & P naphtha as the solvent.

Brush on or spray the pigmented color, dry (you must be the judge of the time), and wipe to color with the VM & P naphtha and again dry.

Since the plastic being finished is attacked by practically all lacquer and enamel solvents, the lacquer coating will be your only practical method of finishing the frame without a buffing operation, which would be expensive. Should you wish to try buffing to bring back the gloss of the plastic, try the following:

Finish the frame as you are now doing, in gold. Apply an air-dry varnish, pigmented to color, with VM & P naphtha as the only solvent. Dry and wipe with VM & P naphtha to final highlight color, removing all color from the frame where color is not supposed to be with naphtha. After the final finish (paint) is dry, polish the plastic on a 1200-rpm. buffing lathe, using a loose sewed buff not over 10-in. in diameter and a standard aluminum polishing abrasive on the buff. Use only slight pressure on the plastic as heat will cause the plastic to flow or melt.—J. F. D.

Substitute for Benzene

In your April issue of INDUSTRIAL FINISHING, under Random Comment, you had a brief paragraph about the toxic effects of benzene. Substitute materials are available which are considered safe but we have had no success in obtaining any information concerning a substitute vehicle for our pigment dip tanks. Can you give us the names of any materials which we can use to suspend our Japan colors in for dipping?

We fully realize the danger of the highly inflammable Benzene and have tried to find one that would be either non-inflammable or at least less apt to burn than Benzene. Any information you can furnish us on a substitute for benzene will be appreciated.—E. F. Co.

Benzene, often called benzol, is certainly a hazardous solvent to use in the finishing room. Not only is it highly inflammable; it is highly toxic as well. Benzene is one of the volatiles in soft coal; in fact, coking operations furnish much of the benzene used in this country. During the recent war, however, means for producing it from petroleum were developed. It is what is known as an aromatic solvent, closely akin to toluene and

"FINISHES"... *by Stanley*

Spring is here . . . which reminds us that even fishing equipment can be made more beautiful, more durable, more saleable by Stanley finishes.

Rubber waders are given a final glistening coat of a special lacquer developed by Stanley research for the rubber industry. Tough Stanley lacquers protect rods and reels. Many coats of other Stanley lacquers or synthetics go on high-grade lines.

Each of these is a special finish. And special finishes for special jobs is Stanley's business. Our staff will welcome the chance to work on *your* finishing problems . . . wood, metal, rubber, textiles, or any other material. Write to Stanley Chemical Company, East Berlin, Connecticut.

STANLEY

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INDUSTRIAL COATINGS

LACQUERS SYNTHETICS JAPANS ENAMELS

xylene. It is a very powerful solvent for a variety of things.

Benzene should not be confused with benzine; note the difference in spelling. Benzine refers to any number of fast-evaporating solvents produced from petroleum. They are often called petroleum naphthas. Benzine is what is known as an aliphatic solvent, and has a structure entirely different from benzene, although both are hydro-carbons. Benzine is not as powerful a solvent as benzene, but can often be used in its place.

Therefore our first suggestion would be that you try an aliphatic petroleum solvent. Consult your petroleum solvents dealer for a suitable product. You may find that one of the so-called toluol substitutes, used in lacquers, would be suitable. Trade names for these products are Troluol and Lactol Spirits. If these are not fast enough, ask for one of a lower boiling range.

As a matter of fact, there are more freely available petroleum solvents which should be satisfactory for suspending japan colors. VM & P naphtha and mineral spirits are available anywhere, and are used commercially in pigment wiping stains. If they are too slow in evaporating, try adding some lacquer thinner to the mixture.

All the substitute solvents we have mentioned are far less toxic than benzene. Some are as inflammable, especially the faster-evaporating ones.

It is always wise to have a hood fitted with an exhaust fan near or over the dipping tank to remove the solvent vapors. This greatly lowers the fire hazard, as well as eliminating the danger of undesirable effects of the solvents upon the workmen.—R. B.

Random Comment on the Industrial Scene

(Continued from page 13)

firms recognize that the time is now to get out and fight for consumer recognition rather than fight to avoid accepting an order.

* * *

Flexibility in Furniture. At an individual show of modern furniture designed by Joseph B. Platt, at a famous New York store, the customary living room, dining room, and bed room suites were well represented, all in the modern manner. Perhaps of greater importance were the individual pieces designed for special purposes and especially adapted to modern close and crowded living. One of these pieces was a round-top table, full size that folded up into a neat package for storage in a closet when not in use. Then there was a combination chest of drawers and milady's powder table. In this, the top of the table lifts up to reveal a mirror on the under side and a roomy cosmetic chest below. Another special piece was an L shaped flat top desk intended to be placed at right angles to the wall. The short leg of the L contains pigeon holes and a drawer for extra storage space.

Oak is the predominating wood, available in blonde finish, or in multi-colored dyes glazed with gray lead to bring out the combinations of quartered and plain oak grain.

Laminated hardwood print rolls for the manufacture of modern wallpaper are superior to solid wood rolls, according to W. L. Carver, Managing Director of The Wall Paper Institute.

Dependability plus-

YARNALL

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have that PLUS factor because —in the making it's a "must" with Yarnall that provision be made for accomplishing *more* than minimum requirements. They never fail *because*, they have—"*Something to spare.*"

Materials Supplies Equipment

Spray-Bake Conveyor Machine

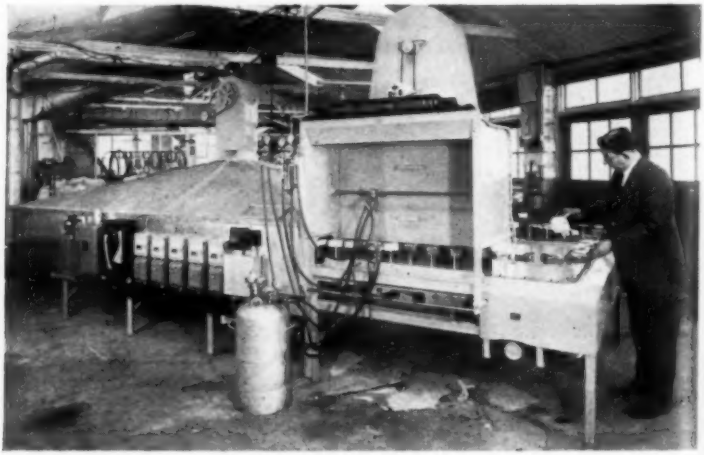
Capitol Machine Co., 36 Balmforth Ave., Danbury, Conn., announces a new automatic spray-bake conveyor machine.

This unit is designed to automatically apply finish coats and bake small parts on a mass production basis. It will take regular or irregular shaped pieces up to 3-in. in diameter and 5-in. in height. All that is required of the operator is loading and unloading the work holders.

The machine is composed of a chain-type track, driven through a variable speed drive chamber and a bake oven having a controlled temperature range from 100° to 600° F. The machine is 18-ft. long, by 6-ft. wide at the widest point.

"Blue Steel" Coloring Process

Protective Coatings, Inc., Box 3985, Detroit 27, Mich., announces that its Blu-Blak process is available to the industry for coloring all steels to a deep rich blue-black. The parts to be blued are immersed in a hot bath for 15 to 60 minutes. According to the manufacturer, this gun-bluing process has met with 100% satisfaction in the firearms industry.



Designed to automatically apply finish coats and bake small parts.

FAMOUS HILO FINISHES

CLEAR WOOD LACQUER

For many years a maker of carpenter tools with a reputation for high quality has chosen Hilo Clear Wood Lacquer for finishing his wooden handles.

Tool handles are exposed to harsh conditions—extremes of outdoor heat and cold, perspiration from the hands, grit and dirt—but Hilo Clear Wood Lacquer stands up, protecting the wood beneath it for years of strenuous service.

Hilo Clear Wood Lacquer gives a smooth, hard, fully lustrous coating over beech, birch, maple and other close grained woods. It may be sprayed or dipped.

Send for a sample of Hilo Clear Wood Lacquer for test in your plant.

HILO

HILO VARNISH CORPORATION

42-60 Stewart Avenue, Brooklyn 6. N. Y.

2420 Washburne Ave., Chicago 8. Ill. • Park Sq. Bldg. Boston 16. Mass.

The DuBois "Tank-O-Meter"

The DuBois Co., Cincinnati, O., manufacturers of specialized chemical compounds for cleaning, degreasing, processing and finishing operations, have made available to the trade a quick method of figuring the number of pounds of cleaning material to be added to a tank to produce a solution of required strength.

Set the length of tank opposite width in left column, then read capacity in gallons opposite depth of tank in right hand column. Reverse side permits computation of pounds of material.

Here is how it works. Referring to the picture, set the length of tank opposite the width in left column. Then read capacity in gallons opposite the depth of the tank in right hand column.

The other side of the "meter" (not shown in the picture) has two columns also. In the left column set ounces per gallons required opposite an arrow mark, then read pounds of material needed opposite gallons in tank in right hand column as computed on other side.

This handy slide rule with four plastic windows may be had by writing The DuBois Co., Cincinnati 3, O.

"Pal"—A Thinning Liquid

"Pal" is a product of the 20th Century Paint & Varnish Co., Brooklyn, N. Y., and stands for *Painters' Alkyd Liquid.* It can be used in many ways, particularly as a thinning agent for all types of paints and enamels. It quickens the drying time of coatings and adds durability to any paint in which it is used. It can be used also as a sealer for walls, a waterproofer, aluminum mixing liquid, rust preventative, glazing liquid, screen coating, etc.

"CorOdex," Rust Remover

"CorOdex" is a liquid rust remover produced by Allied Products Co., 1133 W. Newport St., Chicago 13, Ill. Claims for the new rust remover are that it is amazingly effective on any metal surface, that it will remove even the thickest coat of rust, that it is so pene-

IT'S SENSATIONAL . . IT'S NEW . . IT COSTS NO MORE . . .

Courtesy, American Automatic Typewriter Company

PYRO - CELLO - FILM

The Amazing Wood Finish that Protects and Beautifies

SUPERIORITY UNIFORMITY
PYRO-CELLO-FILM
THE AMERICAN VARNISH COMPANY • CHICAGO 22, ILLINOIS
ESTABLISHED 1860

Developed to meet the finishing requirements of manufacturers whose products require a permanent "Coat of Protection", PYRO-CELLO-FILM enhances all woods and wood veneers . . . Is impervious to the mars, scratches, grease and solutions so harmful to ordinary wood finishes . . . Is easy to apply by the usual commercial methods without special equipment . . . Yet costs no more than the ordinary finish.

Outstanding Features: **EXCEPTIONAL SCRATCH RESISTANCE — HIGHLY HEAT RESISTANT—IMPERVIOUS TO FATS AND GREASES — EXCEPTIONALLY MOISTURE RESISTANT — NOT HARMED BY SALINE SOLUTIONS.**

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ESTABLISHED 1860
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WRITE, WIRE OR PHONE *Today...*
for complete information about PYRO-CELLO-FILM and its application to your wood products.

"CorOdex" dissolves light rust quickly.

trating it reaches pin point spots, pits, crevices, cracks or corners and that it can be applied in a minimum of time with a paint brush or cotton swab.

Other claims for CorOdex are that it requires no rubbing, is non-explosive, non inflammable, and will not injure metal or the hands of the user. Small rust-coated objects may be treated by dipping the articles in a glass, jar or crock of CorOdex.

Optimus Detergents Has New Cleaner for Aluminum

A new metal cleaning compound especially designed for cleaning aluminum, designated as Optimus No. 101A, has just been announced by Optimus Detergents Co., 82 Water St., Matawan, N. J., manufacturers of industrial cleaning materials.

This cleaner is a balanced blend of medium duty alkaline cleaner, including special water softening materials and inhibitors to prevent attack on the metal. It is particularly effective for cleaning dirt, grease and oil.

This compound can also be used as a soak cleaner for ferrous metals other than aluminum, such as die castings, brass, bronze, pewter, etc. In this application, the work can be made the cathode and cleaned electrically. With aluminum, the electro-cleaning application does not apply.

Optimus No. 101A includes a synthetic wetting agent. It is ideal for hot tank applications. A very mild, non-etching type of cleaner, it can be used in small concentrations, with temperature ranging between 140° and 180° F.

A similar material, and a companion product, Optimus No. 101 is applicable for machine washing operations, where the presence of foaming is undesirable. These materials are available in 100-lb. and 400-lb. containers.

Transparent Storage Tanks

In order to solve a difficult liquid storage problem, transparent storage tanks of "Lucite" acrylic resin have been developed. The tanks are used to store a chlorine bleaching solution. They replace tanks of concrete lined with a conventional sealing solution.

Average life of the concrete tanks is about six months. The plastic tanks are expected to last indefinitely, since the Du Pont "Lucite" resists the chemicals in the solution, and repair of the plastic material is relatively simple and inexpensive.

Measuring 36-in. in diameter and 5-ft. in length, the tanks are constructed of ¼-in. sheet "Lucite." Reinforcements consist of strips of "Lucite" along the circumferential and longitudinal seams. Filling valves on the sides and drainage valves at the bottoms of the tanks are constructed from rod "Lucite."

No liquid level indicators or float mechanisms are necessary,

The wrinkle that won a race against time . . .

This job was a real puzzler. A great number of small units had to be sprayed with a considerable time lag between the first and last. What was the hitch? Just this . . . all these parts had to be baked at one time and still have a uniform texture and design.

When finally the problem was put up to Duralac, it had all the earmarks of a lost cause.

Not for long, though. Duralac's specialized experience produced a solution as it has done time and again, tough task after tough task.

How about your own finishing problems? If they call for specialized know-how, just write . . . . .

SEA-LAC

DURALAC CHEMICAL CORPORATION

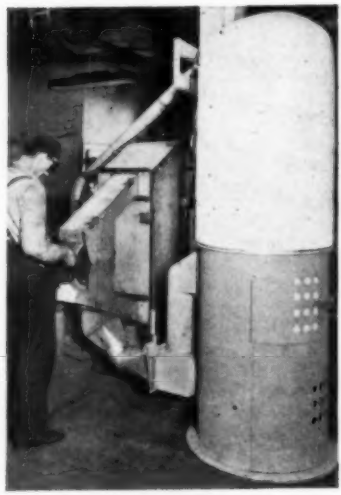
LISTER AVENUE, NEWARK 5, N. J.

since the transparent plastic allows constant observation of the contents.

The new tanks can be produced in various sizes to fit individual needs, according to the engineers of the Sto-Cant Engineering Co., Maywood, Calif., who developed them for the Magic 99 Products Co. of Los Angeles.

Dust and Fumes Eliminated by New Portable Unit

The Kirk & Blum Mfg. Co., 2831 Spring Grove Ave., Cincinnati 25, Ohio, manufacturers of industrial ovens and other finishing room equipment, announces a new portable self-contained dust control unit. This new unit is said to meet the needs of both large and small plants where layouts require the placing of one or more machines in buildings not served by the central dust control system, or in isolated parts of the main plant building.



Adaptable to dust and fume removal, this self contained unit may be set up for temporary or permanent duty on a machine, booth or tank outside the central exhaust system.

This self-contained unit is unusually versatile; it can be set up anywhere to serve any machine for as brief or as long a period of time as needed. The unit will handle sawdust and shavings from woodworking machines, grinding, buffing and polishing dirt from metal working machines, as well as fumes from metal cleaning and surface preparation tanks and any finishing operations.

The unit will meet many needs not feasibly covered by a central system. Exclusive features include an air volume of 900 CFM at 2-in. suction, capacity for four 3-in., two 4-in., or one 6-in. pipe connections; and a four cubic foot storage compartment, in addition to being semi-automatic in its cleaning operation.

Decals for Plastics

Plastical, a new type of decalcomania, designed especially for application on plastic surfaces has been announced by the Christman Engraving Co. of Battle Creek, Mich.

The new type decalcomania has been studied extensively for two years in the laboratory and industrial plants for durability. Time study on application has been made and found favorable to any type decals.

Plastical is applied by the familiar water method without the use of special adhesives. Thus, the inexpensive decal method of product labeling and decorating becomes a practical reality for fabricators of plastic items.

Plastical adheres to all sheet or

ESPECIALLY FOR YOU!

Developing an exclusive finish — *especially for your product* — is the prime consideration of our expertly-staffed Creative Studio. Here, artists with the know-how and experience necessary to accomplish this end work diligently on your finishing requirements until they come through with a coating destined to increase sales . . . make your merchandise stand out above all others . . . Take advantage of this opportunity to give your product added distinctiveness and individuality. Send for details or submit a sample to be finished. No obligation.

No Tampering with Quality

ROCKFORD VARNISH *Company*
ROCKFORD, ILLINOIS

Manufacturers of Protective and Decorative Coatings

molded plastic surfaces, such as the phenolics, acrylics, laminates, polystyrene, urea formaldehyde, vinyl resins, acetate sheets, etc. It has the unique property of forming a definite bond to plastic surfaces. Adhesion tends to increase with the passage of time.

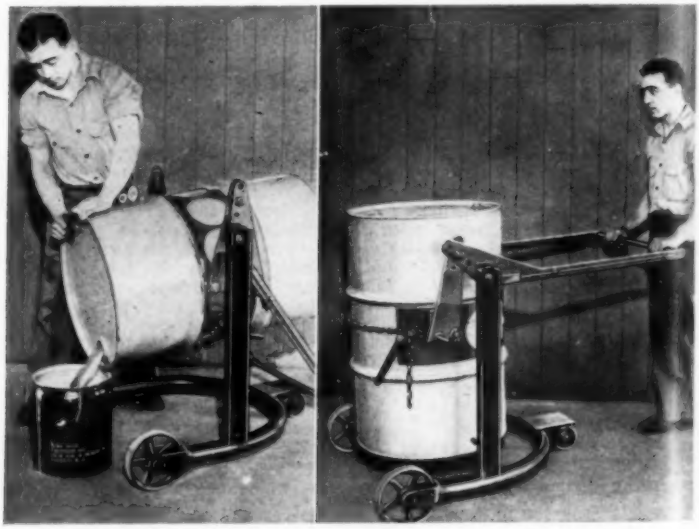
Another Series 300 decalcomania for use on synthetic enamel finishes is also available.

Moving and Tilting Filled Drums Easily

Designated as Model No. 2 by the Falstrom Co., Box No. 118, Passaic, N. J., this drum handler offers simpler operation and greater durability. New gusset plate type lifting arms are made of heavier material and the drum saddle is a one piece stamped welded assembly.

The Barrel-Lift raises loaded drums off the floor with ease, transports the drum and is arranged for tilting to dispense contents. Drums may be rotated with little effort when thorough mixing prior to pouring is desired. Drums placed in the Barrel-Lift are maintained in a nearly balanced position and little effort is required for rotating or tilting.

Pick-up is simple with a safety-locked chain arrangement encircling the drum. Self-locking safety stops, conveniently located, provide finger tip safety control. The mechanical linkage of the lifter is adjustable to give several degrees of leverage permitting the handling of drums up to 750-lbs. gross weight. Saddle tilt locks hold open head drums in a vertical position during transport which effectively prevents tipping and



One man can lift, move, tilt or rotate drums of material easily and safely.

All the way down

Conditions well under the surface sometimes have to be considered.

Every STILLE-YOUNG finish, *tailor-made* for your individual use, considers every element—meets every problem.

Let us help you.

Stille–Young

CHICAGO

LACQUERS • FILLERS • STAINS • ENAMELS • PAINTS

spilling of contents. Drums may also be locked in tilted position. Use of this Barrel-Lift enables drums to be handled by one operator, safely and rapidly. The unit is heavy duty, all steel welded construction.

New Lightweight Industrial Aprons

A new lightweight, easy to wear industrial apron made of Koroseal film, a flexible synthetic material, is announced by the B. F. Goodrich Co., Akron, Ohio. The clear, transparent film is resistant to acids, greases, oils, caustics, gasoline, animal and vegetable fats, butter fats, blood, solvent and soaps, and will not become stiff or tacky. It can be sterilized in a disinfecting solution.

The apron is made in two sizes, 29 by 33-in., with tape and hem, weighing three ounces, and 35 by 45-in., with tape, hem and grommets, weighing five ounces each.

It will be found especially useful in metal cleaning and surface preparation finishing rooms, wood bleaching operations, fabricating departments and laboratory.

Waterproofs Leather

Developed during the war to aid the armed forces in the South Pacific against water-soaked and ill-fitting shoes caused by unexpected rains and jungle downpours, Dewatex Leather Dressing is a new product to waterproof, protect and preserve all types of leather goods and accessories.

Cream-like in consistency, this liquid comes ready prepared in tube form and is easily applied with brush or cloth. One application is stated to last an entire season, protecting the treated article against rain, snow and atmospheric conditions. This cream also softens old leather, serving to renew same, and acts as an excellent base for polish and saddle soap.

Additional information and descriptive literature can be obtained by writing Dewatex Mfg. Corp., 424 W. 42nd St., New York 18, New York.

Heavy Duty Drum Pumps

A new line of air-operated heavy-duty drum pumps, designed for the requirements of large users of finishing materials, is announced by The Aro Equipment Corp., Bryan, O.

These heavily constructed Aro pumps will handle oils, sound deadners, sealing materials, paints, and many other compounds direct from original containers of 55 gallons capacity.

The use of these pumps makes the handling of materials from original drums an easier, cleaner, more convenient operation. The pumps are available in drum cover types for full opening drums, and in bung-bushing types for mounting in drums equipped with 2-in. P. T. bung-hole. Both types are offered in seven pressure ratios, from 4 to 1 to 2 to 1, for any material requirement.

INDUSTRIAL FINISHES

"A Symbol of Quality *in the Finishing Field"*

H. V. WALKER CO.

ELIZABETH 4, NEW JERSEY

Acid and Alkaline Resistant Lacquers for Racks

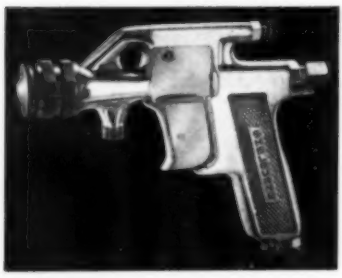
Maas & Waldstein Co., Newark 4, N. J., producers of lacquers, enamels, synthetics and specialized production finishes announces a complete line of Chemtite Rack Enamels and Stop-off lacquers.

These rack enamels and stop-off lacquers have unusually good adhesion and resistance in the acid and alkaline solutions employed in metal cleaning and electroplating processes. They are easy and economical to use and provide effective insulation.

Shelburne Spray Gun Has New Feature

An improved spray gun for spraying heavy material is announced by the A. Shelburne Co., 739 Ceres Ave., Los Angeles, Cal., manufacturers of spray gun equipment. Designated as the Shelburne 45 Undercoater, the gun is the newest version of the Shelmatic 45, which has been used for spraying synthetics and lacquers for the past nine years.

The 45 Undercoater is designed primarily for use with underseal compounds, but can be used also with other types of heavy materials. The new Shelburne model is light, easy to handle, non-leaking and features an enclosed, straight-line action trigger for effortless 2-finger operation. It is also equipped with a built-in air control valve. Cleaning the Undercoater is a quick, simple operation. The spray head assembly is unscrewed with the fingers and the needle valve pulled out. No wrench is needed.



Light weight, easy to handle and easy to take apart for cleaning or adjusting.

"Keepkan" Brush Cleaner

Keepkan is a complete unit for cleaning paint brushes before the paint hardens. It consists of a patented brushhanger, cleaning liquid, and container. Wet brushes are placed in the brushhanger which suspends bristles in the liquid. This laboratory developed solution draws out every bit of pigment and dirt, leaving bristles clean, soft, straight, and like new. Brushes that have been used in paint of different colors can be cleaned in the same can at the same time.

Evaporation of the liquid has been retarded and it can be used over and over again, and does not lose its strength. Liquid refills are sold separately. Keepkan is available in two sizes. For further details write to The Howe Co., 98 Leete's Island Road, Stony Creek, Conn.

Shaped Flexible Abrasive Sticks

Sandusky Abrasive Wheel Co., 748 W. Ransom St., Kalamazoo, Mich., manufacturers of cut-off, grinding and polishing wheels, announces a new product—Sandusky Flexible Abrasive Sticks.

These new Flexible Abrasive

A FAMOUS FINISH

Custom Tailored

to insure maximum COVERAGE at lowest cost, while maintaining high, uniform quality.

CHOOSING THE RIGHT FINISH IS IMPORTANT . . .

We suggest, therefore, that you consult us if you have a knotty problem. Our laboratory is geared to formulate ESPECIALLY FOR YOUR NEED any type of lacquer the job demands.

We can give you the finest formulation service in the East. So why not bring us your finishing problem? These are a few ALAKA FINISHES recently developed for specific purposes.

WRINKLE FINISHES
ZINC CHROMATE PRIMER
QUIK-BAKE SYNTHETICS
AIR-DRI SYNTHETICS
SYNTHALAK SYNTHETICS
CELLULOSE ACETATE
FINISHES FOR PLASTICS

MARINE LACQUERS
AIRCRAFT SPEED FINISHES
BRASS LACQUERS
BRONZING LACQUERS
TEXTILE AND SILK SCREEN LACQUERS
(LACQUER ENAMELS—ALL COLORS)
SURFACES, ETC.

METALLIC LACQUERS
WOOD LACQUERS
ADHESIVES AND CEMENTS
FUNGUS-PROOF LACQUERS
WATER DIP LACQUERS
GLASS AND PORCELAIN
ENGINE LACQUERS

Save unnecessary labor with ALAKA LACQUERS!

ALAKA LACQUER & CHEMICAL CORPORATION — 220 FORTIETH ST. BROOKLYN 32, N. Y.

Sticks are made of carefully graded and selected abrasive grains bonded in high quality rubber. They are tough, pliable, long wearing, they do not load or glaze, and may be used dry or with water.

In stick form, Sandusky rubber-bonded abrasive grains in three grades and in a wide variety of sizes and shapes are used for all kinds of light cleaning, deburring, rust removal, sharpening, honing, polishing, etc.

A feature of these new abrasive sticks is the ease with which you can cut and shape them for countless jobs such as shaping and smoothing contours, grooves, beads and all irregular or hard-to-get-at-places. By shaping the abrasive sticks to fit the work, you get a better job of finishing and you also do the job faster and easier, because you get the largest possible area of fresh, abrasive grain against the work.

Combined Industrial Vacuum Cleaner and Blower

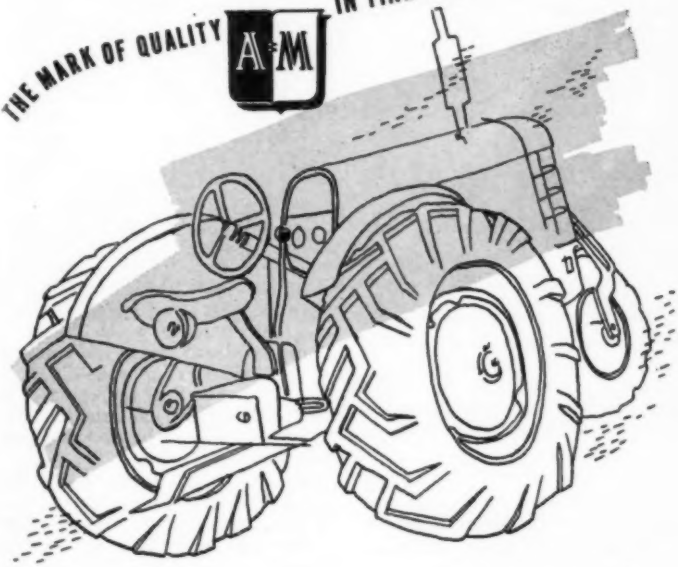
A new and improved model of the well-known Breuer Tornado portable industrial vacuum cleaner combines two valuable maintenance aids in one machine without sacrificing the efficiency and practicability of either. By a quick and simple adjustment of two parts readily accessible at the top of the machine, the motor-fan unit of the vacuum cleaner is easily removed and becomes a powerful portable blower which fits the hand naturally and may be directed in any position.

A blast of clean, dry air moving at the rate of 295 miles an hour safely removes dust, dirt and sticky fuzz from hard-to-reach places where dirt and dust accumulate to cause trouble and fire-hazard.

Returned to position on the vacuum cleaner and locked securely into place just as quickly and simply, the Tornado portable industrial vacuum cleaner is instantly available for suction cleaning anywhere in the plant. The Breuer design of exhausting the air through a bag outside the tank keeps the suction uniformly high at all times. Only the lighter dust enters the bag. All heavy dirt, scraps and metal particles move directly into the 12-gallon steel tank, bypassing the powerful suction fan so there is no danger

Can be used as a powerful vacuum cleaner or a portable hand blower.

THE MARK OF QUALITY A-M IN FINE PAINT FINISHES



for FARM EQUIPMENT

Colored Lacquers afford maximum outdoor protection and long-life color—providing implements and other farm equipment with a bright, glossy and mar-resistant finish that will safeguard equipment surfaces from wear and weathering. Through years of intensive research, colored lacquers present an outstanding example of the skilled craftsmenship characterized by every American-Marietta product.

A-M FINE FINISHES

American-Marietta Company

43 E. OHIO ST. CHICAGO 11, ILL.

A GREAT NAME IN PAINT MAKING

of injury or breakage to moving parts.

Tremendous cleaning power—185-cu. ft. of air per minute with a 49-in. waterlift—is secured through a specially designed fan and a 1-hp. G. E. universal motor mounted on oilless ball bearings. It is a product of Breuer Electric Mfg. Co., 5100 N. Ravenswood Ave., Chicago 40, Ill.

Marks Cartons and Products

High-speed manual marking of cartons, cases, paper bags, plastic, metal, textiles and paper, is achieved with the new lightweight "Rolamarker," manufactured and sold by Adolph Gottscho, Inc., 1 Hudson St., New York 13, N. Y., designers and manufacturers of industrial marking equipment.

New Varnish Protects and Preserves Fishing Rods

Designed primarily for protecting and preserving bamboo or metal fishing rods, Devoe & Raynolds is introducing the Izaak Walton Varnish, a synthetic varnish so elastic that it is not affected by the stresses and strains that a fishing rod must withstand.

Unusual, in the fact that it will not turn white in *fresh* or *salt water*, it also resists temperature changes, fly oil, line grease and insect repellents.

Of singular interest is the source of the product name. Izaak Walton is known as the "Father of Angling." In 1653 he published "The Compleat Angler," still one of the most popular works on the subject.

The Proper Teaching of Beginners

BY ELTON STERRETT

EVEN THE LARGEST finishing shop, or department of a big factory, will hardly justify a training school for new employees. The average "little fellow" usually has ideas about how a man should be trained, but he hasn't the time nor the facilities for working them out in practice.

Job training readily divides itself into two main heads: the plan whereby a new man is assigned to whatever job is open, there to work out his own salvation; and the system under which the newcomer is placed under the tutelage of an older employee—older, I mean, in point of experience in that particular job—and is left there to soak up what knowledge and deftness he can.

The first plan is too much like the old method of teaching a boy to swim by tossing him into deep water and leaving it up to him to swim out. Usually it works, but at the cost of a fear of water which clings to some men throughout life. The same is true of the job which is more or less hazardous, and which may also cost the plant high in spoilage during the self-training period.

The "older brother" plan has excellent possibilities for development of high-class workmen, but much hinges on the selection of the proper employee as teacher, guide and example. We found, when attempting to apply this plan, that the showy operator—while possibly effective in his own work, is usually too fond of the limelight to have the patience to stand by and watch a well-meaning but slow beginner. Also, the

A Two-Edged Sword . . .

TO SUPPLY the pent up post-war demand, the furniture industry is rapidly being mechanized by PALMER-BEE Conveyors.

P-B Trolley Conveyors up to 1200 feet in length are being installed for processing, finishing, transporting, warehousing and shipping.

The P-B Trolley Conveyor is a two-edged sword; it cuts costs and cuts time in process simultaneously.

Telephone, telegraph or write to our Winston-Salem, North Carolina office (established 1929) for the advice of an experienced engineer.

PALMER-BEE CO.

DETROIT 12, MICH.

PALMER-BEE CONVEYORS

show-off, being interested only in results, is apt to slight or gloss over the rudimentary parts of the job when explaining it to another. His explanations are apt to stress his own contributions to the finished work, rather than that of the equipment he uses.

Teaching skill is far from a universal trait, and it is a serious error to assume that, because a man makes a good foreman or production executive, that he can also train new men. Most often, the very characteristics that make him a good executive rule him out as a teacher—and, from the plant viewpoint, he can not well be spared from his regular duties to give lessons, no matter how informal, to others.

We found that the average of teaching material in our force ran less than 10%—that less than one man in ten had the necessary patience, intuitive grasp of the other fellow's angle, and copyable skill to be profitably utilized in training other men for his job. And of these few, the most successful were those who taught by suggesting methods, rather than arbitrarily laying down rules.

It was at the suggestion of one of our "job instructors" that we made one significant revision in our training program. At first we put new men to work refinishing or salvaging rejects from the inspection department. This method eventually got the work turned out, but it also gave the new men the idea that a certain amount of spoilage was to be expected. When one of the "teachers" pointed out that the plan was creating this

CUT
coating costs
WITH GASWAY
ROLLACOAT FINISHERS
Faster and more economical finishing of the highest quality is possible with Gasway Rollacoat machines that have proven their worth in varied fields for more than a dozen years.
Pioneers in the design and manufacture of Industrial Rollacoaters, Gasway produces units up to 49" wide. Present your painting problems to our engineering department.
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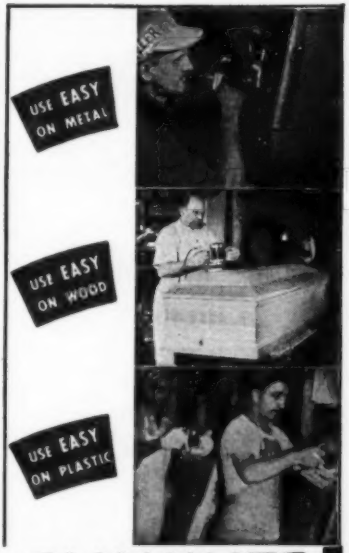
6463 N. RAVENSWOOD AVE. • CHICAGO 26

image for the new men, a shift was made so that each new man worked on the same type of job as he would be expected to handle alone after completion of the training period. Quality as well as quantity of work turned out by the neophytes increased almost at once. The implied responsibility of doing the whole job right, from the start, helped to improve the man's attitude toward his work, with results which were plainly—and pleasingly—evident in the bookkeeping department.

Of course, no one employee was the best possible instructor for all of the new men, nor was it always possible to select a team that would pull together. But, as our knowledge of the personal likes and dislikes of our older men grew through longer association with them, so did the number of misfit assignments decrease. In the office interview preceding employment, every effort was made to uncover traits, prejudices or quirks which might make it difficult for any of the recognized instructors to find a common footing with the newcomer. In quite a few instances, otherwise promising material was passed up at the employment window because there seemed to be no competent instructor available who we thought could work with the applicant.

Incidentally, it was interesting to learn from our records that the men whom we called on to instruct others showed a turnover far below the average for men doing the same work.

Job training is an integral part of every finishing plant; and personnel, as well as individual, personal interest, can easily change the color of the ink the bookkeeper uses to draw up the annual statement.



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For sanding, rubbing, polishing, scuffing and "feather-edging"—on CURVED or flat, WET or dry surfaces. This fast, rugged, light tool with straight-line, back and forth "hand sanding" action has proved itself in thousands of shops.

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1000's are Saving with it ..... Write for Facts
Easy RECIPROCATING ELECTRIC SANDER

SPRUANCE

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Wood and Metal Finishes

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We are now supplying the furniture trade with 4-HOUR DRYING FILLERS. It can help you speed up production. Write today.

FACTORY & LABORATORY

THE GILBERT SPRUANCE CO.

RICHMOND & TIOGA STS.

PHILADELPHIA, PA.

SPRUANCE QUALITY

Publisher of "Products Finishing" Dies

Don G. Gardner, President of Gardner Publications, Inc., died suddenly May 15.

Mr. Gardner had wide experience in the newspaper advertising field as well as in the publication of trade journals. He was active in civic affairs in Cincinnati and was prominent in fraternal organizations and clubs.

He is survived by his widow, Mrs. Margaret Gardner, two daughters, two sisters and two grandchildren.

Annual Meeting of Nat. Assn. of Metal Finishers, Inc.

The annual meeting of the National Association of Metal Finishers, Inc., will be held in Detroit, Mich., at the Statler Hotel on Wednesday, June 25, 1947. Mr. Henry J. Bock will be Chairman of the meeting.

The headquarters of the National Association will be located at the Statler Hotel as well as the general offices of the Association at 2238 Dime Bldg. All members attending the annual meeting should register at headquarters and receive their dinner tickets.

Industrial Process Engineers in Chattanooga, Tenn.

Edgar A. Rogers, Chattanooga Bank Bldg., Chattanooga, Tenn., announces the association with him of Chester A. Roush, Jr. Mr. Rogers' long-established business is the analysis of process plant requirements and the application of equipment specifically engineered to meet special as well as ordinarily encountered operation conditions.

Mr. Roush, a chemical engineering graduate of Georgia Tech, recently returned from over three years duty with the U. S. Navy.

Mr. Rogers, A Mechanical Engineer, represents Mixing Equipment Co. of Rochester, N. Y. and several other concerns that manufacture industrial epuipment.

Prominent Man in Shellac Industry Dies

Edward Hicks, died of a heart attack at his home in Elmsford, N. Y., May 12.

He joined William Zinsser & Co., shellac importers and bleachers, New

RADIANT HI-HEAT R40 Infra-Red LAMPS

Save Money · Increase Production

Radiant Hi-Heat Infra-Red Lamps withstand fumes, moisture, rough handling, and sudden temperature changes without cracking. Safer. Last longer. Reduce replacements. Assure uninterrupted production. Available 250W and 375W. Medium CLAMP base. Install a few Radiant Hi-Heat Lamps where ordinary lamps fail, and compare results.
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CHICAGO LOS ANGELES
Manufacturers of Lamps for
PROJECTION · SPOTLIGHT · FLOODLIGHT · EXCITER · MOTION PICTURE PRODUCTION · AERONAUTICAL · GENERAL SERVICE

BOOKS On Finishing Available

"MODERN ORGANIC FINISHES—Their Application to Industrial Products" (452 pages) New	$8.50
"CHEMICAL FORMULARY" (Vol. VII)	7.00
"LACQUER AND SYNTHETIC ENAMEL FINISHES"	6.25
"PRACTICAL FURNITURE FINISHING" (112 pages)	1.25
"FURNITURE FINISHING" (543 pages)	4.00
"SPRAY PAINTING"—Industrial and Commercial (128 pages)	1.50
"THE MIXING OF COLORS AND PAINTS" (292 Pages)	2.50
"WOOD FINISHING" (361 pages)	2.50
"CONCISE CHEMICAL AND TECHNICAL DICTIONARY (1120 pages)	10.00
"SILK SCREEN METHODS OF REPRODUCTION" (233 pages)	3.00

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"PLAS-STIK"
No. 100
...The New Wood-Filling and Patching Compound
- SPREADS LIKE BUTTER
- MANUFACTURED IN COLORS
- TAKES ALL STAINS
- MINIMUM SHRINKAGE
- ECONOMICAL

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Minnesota Mill Works
"PLAS-STIK" PRODUCTS DIVISION
2364 Hampden Ave., St. Paul 4, Minn.

SOLVENT CLEANING
whether your operation is
DIP
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MANUAL
AGITATION
We can recommend and supply the right solvent.
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York and Chicago, 22 years ago and for many years held the position of General Manager. In addition, he directed the work and advertising of the Information Bureau of the American Bleached Shellac Manufacturers Association, an advertising program that was interrupted by the war, but recently again resumed under his guidance. Mr. Hicks was well known in the shellac field, and very popular throughout the country. He was very active in civic affairs. He was a native of Salem, Oregon, and was graduated from the University of Oregon.

September Machine Tool Show To Be Held in Chicago

The National Machine Tool Builders' Association announces a showing of machine tools and various other kinds of metal working equipment, appliances and accessories.

The show will be held in Dodge-Chicago plant from September 17 to 26 inclusive. More than 1000 machine tools and related equipment and appliances will be shown in actual operation in the huge 500,000-sq. ft. plant.

Advance registration should be made to National Machine Tool Builders' Association, 10525 Carnegie Ave., Cleveland 6, Ohio. Hotel reservations may be made through the Chicago Convention Bureau, 33 N. LaSalle St., Chicago 2, Ill.

"Paint Engineering" Described in New Booklet

A new service for industrial paint users called "Paint Engineering," designed to help all industrial users of paint or operators of coating lines, is described in a new booklet offered by Bradley Paint Engineers, Inc., manufacturers of industrial paint and coatings of all types.

An organization at Bradley Paint Engineers has combined chemical and mechanical engineering so that not only proper paint or coating formulas may be developed but also the correct mechanical application machinery. The combination of these two interrelated engineering services places the complete responsibility for product coating and coating methods under a single management and eliminates the dangers of separate planning by unrelated suppliers.

The booklet contains a complete description of "Paint Engineering" service and the Bradley manufacturing facilities. Copies may be obtained either from this publication or from Bradley Paint Engineers, Inc., 311 Jones Law Bldg., Pittsburgh 19, Pa.

WHO? ME?

YOU BET I WEAR

DUPOR No. 4

The favorite paint spray respirator! Rubber face mask provides air-tight fit over nose and mouth. Thick felt filters keep aggravating fumes, gases, vapors out of lungs. Also wear as protection against sawdust, silica dust, grinding compounds. Price $19.80 doz.

Sample $1.65

H. S. COVER
South Bend, Ind.

COVER'S GAS-TIGHT FOG-PROOF GOGGLES
$1.65

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Formerly the Mitchell-Mayer Co.

BRONZE PASTES
BRONZE POWDERS
ALUMINUM PAINTS
GOLD POWDERS
CHROME-TYPE ALUMINUM PAINT

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Industrial FINISHING

Distributed Monthly to finishing room and paint shop foremen, production superintendents and company officials of metal-working, woodworking and miscellaneous industrial plants where production cleaning and finishing are major operations in parts and products manufacture.

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U. S. and Possessions.....$2.00
Canada and Foreign Countries $4.00
(No subscription solicitors are employed)

Editorial

Return Drums and Barrels

Industry generally is still short many materials which hamper production. Individually there is little we can do to overcome many of these shortages.

There is one scarce item that we can do something about, and that is the drums and barrels in which finishing material is shipped. Why not check up today and return all drums that are returnable for credit, and dispose of the others through your regular procedure. The main thing is to get them back in circulation.

A three-fold purpose will be accomplished. Plant storage will be cleaned up and take on a far neater appearance, the supplier of finishing materials will have containers for his product, and your next order may be shipped more promptly.

Don't Resist New Ideas

★ Some executives and supervisors in industry think that because an idea is new it is good. Many times they pick up a new idea, and without proper reflection and mature study, rush ahead under full steam to put the idea into effect. Far too many times their enthusiasm quickly cools and is forgotten. Time and effort are wasted, when only a little study would show them that the possibilities of the idea were very limited. Such individuals lack the facility to weigh values. When the year is over they have been running around in circles and accomplished little. They should have followed an open-minded, consistent plan of action. Occasionally such individuals will strike a good idea that pays off, but their batting average is too often very low.

On the other hand, there are

★ Guest Editorial . . . Many readers can write an excellent editorial — two or three paragraphs that present a timely suggestion or valuable idea which will stimulate real thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

executives who have a worse fault. They call themselves conservative, but in reality they have merely gone to sleep on the job. This type is content to follow the old ideas and methods because they proved to be good in the past. And so he goes along in the same old rut while the parade passes him by. This type of man takes the easy path, and shows a marked resistance to any new ideas or methods simply because they disturb his complacency, although he would never admit it. He is secretly afraid that if he opens the gates to one new idea there will be a flood. Then where will his tight little shell of complacency be? But sooner or later comes the day of reckoning, and this individual finds his shell of complacency split wide open whether he wills it or not.

There you have two extremes in business management. What is the right course? Neither, of course, but there is a middle ground that brings results and avoids the errors of the two extremes. Let us get down to cases.

Salesmen of paint manufacturers quickly spot the symptoms of both extremes of management. A salesman in contacting the first type of individual will get a ready reception. His story is heard, and he is asked for samples. The samples come in, and are turned over to the proper person for evaluation. But when the samples are opened and the material is applied, it is given only a cursory trial. Conclusions are drawn which may be utterly false. Enthusiasm quickly dies and the salesman is told that his materials are not suitable.

The so-called conservative type of individual will ask for samples in order to quickly close the interview. In due course of time they

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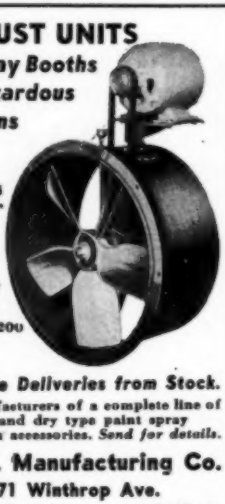

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come in, are unpacked, and placed on the shelf. They gather dust as time goes on, and are finally thrown out without trial when house-cleaning time comes. When the salesman presses for action, he is told that the concern cannot forever be looking at samples; they would have no time for their regular business.

These two stories are only too familiar to all paint salesmen, especially those calling on industrial consumers.

The truly and soundly progressive paint buyer will patiently hear out what the salesman has to say. All the time he is trying to fit the salesman's story into his own plant. Immediately the possibilities begin to take form in his mind. He sees the opportunity to do some pioneering if the materials the salesman describes are new. He rejects ideas that are obviously not suited to his production. From the thread of conversation he picks up an idea here and there which looks good. Then, when the samples come in he has some sound and definite ideas. If the first trials are disappointing, he is not willing to give up. He wonders why, because the salesman certainly was not fabricating his story out of thin air. He tries again, and may ask for some modifications, requiring new samples. Thus he follows through until the time comes that he can decide on a sound basis whether or not the material suits his purpose.

This attitude on the part of the paint buyer brings results. He makes sure he is not rejecting an idea that may prove fruitful. At the same time he waits until he has all of the facts before making a decision.

Volumes could be written, with illustration after illustration show-

(Continued on page 130)

CHADELOID CORPORATION

Announces

A sensational new

Combination Stain-Filler

EMULSION

BASED ON NON-GRAIN-RAISING STAINS

Characteristics:

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4. Filler is not pulled from the wood, even when the 24-hour period elapses between application and wiping.
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6. Material exhibits good holdout qualities and permits more than adequate knitting with top surfacers.
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Chadeloid believes its new Synstain emulsion will become the keystone material for finishing open-grained woods . . . believes this emulsion embodies all of the qualities desired in a combination stain-filler of the non-grain-raising type.

SAMPLES— may be obtained from your Chadeloid-Authorized supplier . . . 86 manufacturers of Chadeloid non-grain-raising wood stains and Synstain combination stain-fillers are listed on the opposite page.

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ing how this truly progressive method pays dividends. The alert and progressive man who is on the lookout for new materials and better methods will always be in demand.—R. W. H.

Over-Expansion? Be Careful

★ I notice a tendency among several concerns to go in for expansion—more capital investment such as new construction of buildings to increase the square footage of production space. Executives of these firms, of course, believe they are not over expanding, but time will tell whether or not they are right. A lesson from what happened after World War I should remind us that the experience of the past, with a little timely polishing up, can guide us along the right road now. Large investments of cash, bond issues and stock issues were put into new plants at that time. Tremendous amounts of capital, through financial paper issues and credits, were also sent to Europe. Industry stretched its reserve powers to extreme thinness. Industrial firms, eventually, could not get quick money on good terms, because banks had also stretched their credit beyond the capacity to meet any sudden money demands.

Money loans were almost hopeless unless one agreed to give the financial houses a controlling interest in his firm, a mortgage on the works, and perhaps other considerations, too. Many of us can remember 1930 to 1934. What is the answer today?

Industry now has many young executives who have very little knowledge of the economic conditions after World War I; but

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with a little research, they may reach the same conclusions that I have. Those conclusions are: First, replace obsolete equipment with today's newest equipment, provided that the new equipment can be proved to your entire satisfaction to reduce the time-in-process, material waste and labor waste, without any substantial increase in floor space area.

Second, if additional building space is needed, be very careful about your planning. Building costs are high and delays are likely to occur. Plan for more perhaps, but actually build as little as is practicable.

Third, if it is absolutely necessary to build a large new structure to house your increased production, then consider the possibility of decentralizing — even building in another town. It may be desirable to place this new structure in a part of the country where you can overcome the high freight rates which will certainly be raised again. Keep an eye wide open toward increasing the speed of delivery and service to your customers who, perhaps are being priced out of your market by high freight rates.

From a study of the period following World War I, I feel that too many factories will contribute to another time like 1930 to 1934. With the exception of those new plants that are absolutely necessary, present plants with good production machinery, can give us continuous prosperity. — NORMAN ABRAMOVICE.

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CHICAGO 54

Revised Data Available on Industrial Finishes

A complete catalog of revised Technical Data Bulletin on lacquers, enamels and synthetics manufactured by the Maas & Waldstein Company, 438 Riverside Avenue, Newark 4, N. J., are now available for distribution. These bulletins, available upon request, contain new, up-to-the-minute, specific information about the use, characteristics and application methods for various M & W production finishes.

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Competition Calls for Salesmen

★ Competition is coming back. In industries that offer finished products, whether they be furniture, metalware, toys or automobiles, this competition will be felt, and only through superior workmanship and excellent salesmanship will these manufacturers come through the battle of competition.

The successful salesman will have to know his product—and knowing it well, he will be in a good driving position. I believe that the most able salesman a firm can put on the road is one who has spent a good deal of his time in the finishing department. A finishing department, by its very nature, must be a flexible organization in which all weaknesses as well as all good points of a product are seen in the raw.

Men familiar with the finishing department (what enters it, what is done in it and what leaves it) are in position to note the structural deficiencies as well as structural qualities of every product. And, of course, they know the quality of the finish on the product—what it costs and what it represents in the way of materials, labor, equipment, skill and experience.—N. A.

Silicone Finishes On Your Products

★ A considerable amount of information has been published in the past two years about the remarkable silicone resins. Up to date however, comparatively few applications for silicone paints have been found in the field of industrial finishing. It is interesting to

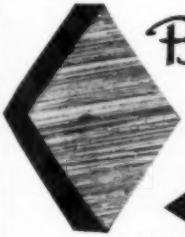
note that a number of practical silicone finishes have become available recently. These silicones are particularly useful where extremely high temperatures, up to the range 1500° to 2000° F., are to be withstood.

Silicone finishes may also be formulated so as to impart outstanding chemical resistance to a desired object. Silicone finishes may be baked or air dried. Generally the bake finishes possess more desirable properties, but air-dry finishes which are suitable for numerous applications have been developed.

Silicone finishes are being used today on smoke stacks exposed to high temperatures and corroding fumes, on various stove and burner parts which are subjected to high temperatures for lengthy periods, and on other appliances where conventional vehicles would fail by decomposition at operating temperatures.

It is interesting to note that while many silicone finishes sell for approximately $25.00 per gallon, some modifications have been developed recently which, although outstandingly superior to conventional finishes, sell for as little as $5.00 a gallon (in the form of an aluminum silicone material for applications subject to high temperature).

Much development work is currently taking place on these finishes. Efforts are being made to produce gloss whites made on a silicone base which will be competitive with porcelain in price, and superior in many respects. Silicone finishes are indeed materials of the future.—M. A. G.



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